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Future Operator Symposium Proceedings

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Introduction/Background

Twenty-first century joint/interagency war-fighting realities have forced a change in the definition of an Air Force Operator.

—Gen Stephen R. Lorenz
Commander, Air Education
and Training Command

Over the past several years, operational requirements for rated officers (operators) have outpaced the Air Force's legacy operator development construct. Originally, the operator construct was based solely on pilots. Over time, this shifted to a rated construct. More recently, the rated construct has evolved to the term *aircrew*. This gradual shift in terminology and construct—coupled with a shift in operations, a reduction of force, continued shortages of rated staff and experience, reductions in rated/aircrew production, and emerging career fields (remotely piloted aircraft and cyberspace)—have created significant force development challenges in the Air Force. Furthermore, Air Force operators and other Airmen must understand Air Force capabilities as presented to the joint force commander, civilian leadership (Office of the Secretary of Defense and interagency), and the American public. Present and future force presentation options include more than just the single air domain, for the presentation of Air Force operations now includes the air, space, and cyberspace domains.

At the request of Gen Stephen R. Lorenz, Air Education and Training Command commander, the Air Force Research Institute hosted a "Future Operator Symposium" at Maxwell Air Force Base from 21 to 23 July 2009. The goal was to bring people together from throughout the Air Force to discuss what our operators should look like in the future by exploring developmental, training, and educational issues the Air Force may face in the next 7–10 years. Specifically, General Lorenz asked participants to assess how the Air Force will grow operators who are technically proficient in their own weapon systems and capable to effectively operate in a cross-domain environment (air, space, and cyberspace).

Accordingly, the mission of the "Future Operator Symposium" sought to define the term *operator*, determine future operator competencies, and specify operator developmental, educational, and training recommendations to the commander, Air Education and Training Command. Overarching these elements was a requirement to simultaneously support Air Force cultural acceptance and recognition of the emerging operator career fields.

The cross-domain operator should have the ability to plan and integrate Air Force capabilities, systems, forces, and operations in and through air, space, and cyberspace to deliver the desired effects (kinetic or non-kinetic) across the full range of military operations at the operational level. Advances in technology, continued reduction in forces, and persistent irregular warfare operations have resulted in the need to redefine an operator. In the past, an operator was considered a pilot or navigator. Eventually, this concept evolved to include space operators and air battle managers. Currently, operators are not limited to remotely piloted aircraft and cyberspace operators. While all operators can be classified as Airmen, not all Airmen are operators. However, the distinction between the two terms continues to blur at an ever-increasing rate.

Methodology

Over 270 active duty (officer and enlisted) personnel and Department of the Air Force civilians, representing all three domains from 17 different organizations, participated in the symposium (figs. 1 and 2). In addition, 14 general officers participated as attendees, guest speakers, or panel members (fig. 3). The ranks of the participants ranged from staff sergeant to general.

The symposium consisted of 14 working groups/seminars made up of from 16 to 18 participants from each of the domains (air: manned and unmanned; space: missiles and space systems; cyber: network operations and communications; combat systems officer; special operations; air battle manager; and the requisite enlisted corps). In addition, plenary sessions and panel discussions enhanced the overall symposium discussions.

The symposium participants specifically addressed the following research questions.

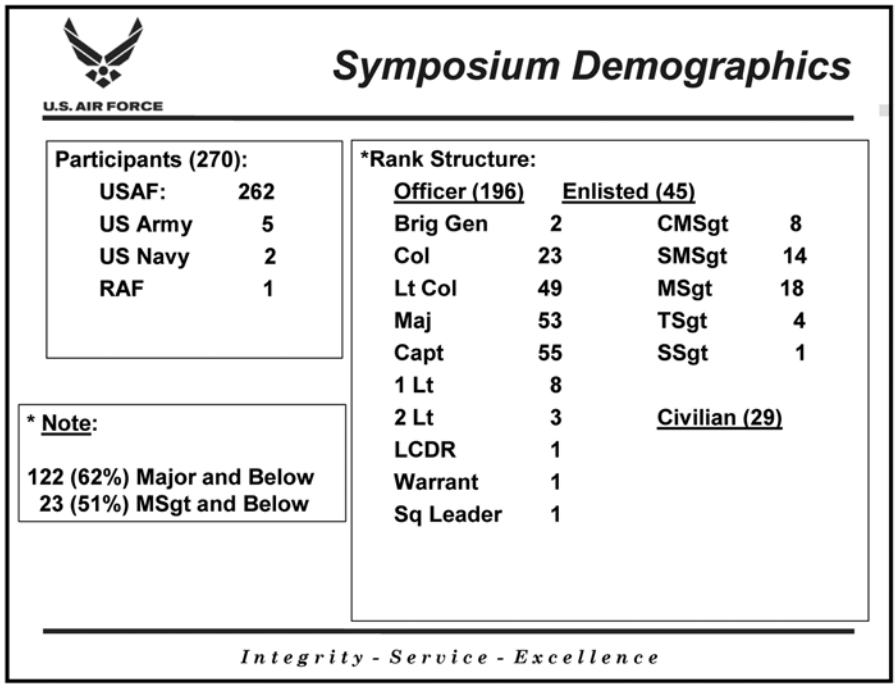

Figure 1. Symposium demographics

- What is an operator?
- What are the essential cross-domain competencies for an operator in a joint environment?
- What is the force development path to ensure cross-domain competence?

Each workshop/seminar had a designated facilitator and a recorder. The facilitator encouraged the open exchange of ideas, kept the participants on track with the assigned questions, and created a nonattribution environment that supported involvement by all participants, regardless of rank. The recorders, who did not participate in the discussion group, captured the participants' comments and placed them into a specifically designed Excel database to assist in analysis. This resulted in acquiring 1,958 data entries ranging in length from a few words to several paragraphs.

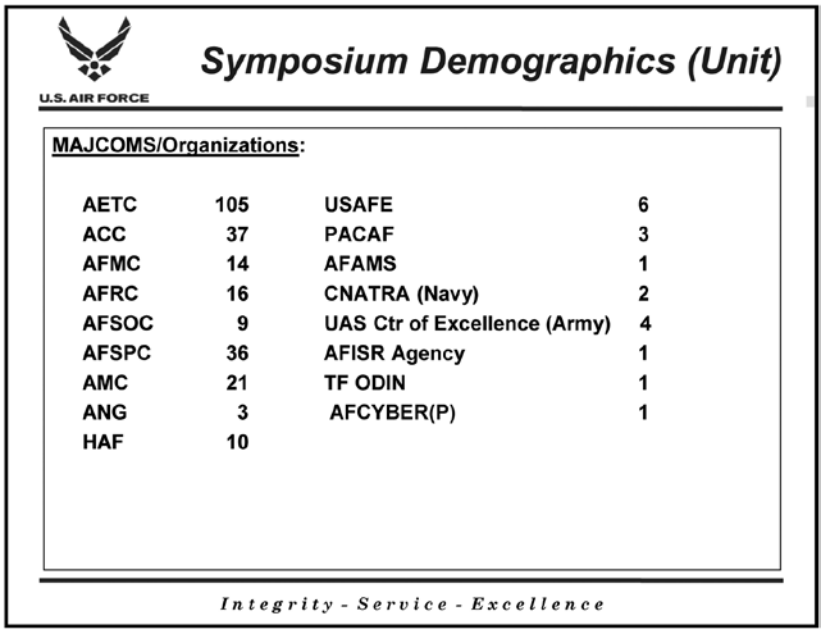

Figure 2. Symposium demographics (unit)

Figure 3. Future operator symposium senior officer participants

Determining the Future Operator Definition

> *The term* operator *may be more relevant than the term* Rated *and could help better organize, train, and equip forces for the holistic application of air, space, and cyber capabilities, now and in the future.*
>
> —Maj Gen Mike Worden, ACC/CV

The first challenge for the symposium attendees was to determine a definition of a *future operator*. Of the 14 workshops, 13 provided recommendations (annex A). Although each workshop functioned independently, several of them shared commonalities of an operator definition. Specifically, the workshops believed a definition of an operator should include the following five key elements (fig. 4). An operator should be able to

1. Operate or Control a Weapon System
   - Effectively employ a weapon system
   - Operate in networks
   - Interact with other operations
   - Remain focused
   - Possess ability to interface
   - Delegate authority
   - Possess ability to employ a weapon system
   - Be governed by the rules of engagement/law of armed conflict
   - Understand how to employ, integrate, and deliver tailored effects in the domain based on skills, training, and experience
2. Possess Certification
   - Display accountability
   - Demonstrate ability as an operator vice specific Air Force specialty code (ASFC)
   - Base his or her role on experience
   - Include rated and nonrated personnel (Airmen)
   - Accept standard evaluation function
   - Maintain proficiency
   - Recertify requirements

3. Direct or Deliberate Effects in the Battlespace
   - Create/cause/produce desired effects, including kinetic or non-kinetic
   - Support across Air Force core function areas, including integrated effects, synergistic effects, and tactical, operational, and strategic effects

4. Advance Cross-domain Competencies
   - Show expertise in primary domain/weapon system
   - Understand and communicate Air Force contributions/capabilities across multiple domains
   - Display a strategic vision of how various aspects of the three domains integrate to produce effects

5. Support a Joint Force Commander (jointness)
   - Advance mission in support of joint operations
   - Understand how the Air Force provides forces and integrates into the joint fight
   - Influence joint operations
   - Understand joint and Air Force doctrine

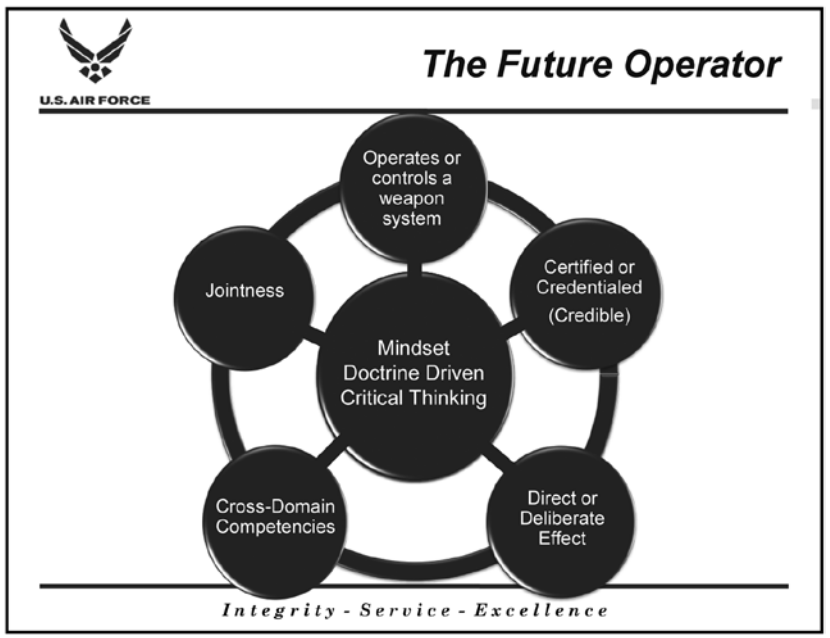

Figure 4. The future operator

By merging key elements of an operator, the workshops offered the following two definitions of an operator:

a. "An operator is an Airman, possessing specific credentials, directly controlling a weapon system thereby creating the desired effects (kinetic or non-kinetic) on/in the operational Joint environment (battlespace), either through a physical, virtual, or remote control presence, in support of a joint force commander's directives/objectives through the effective integration and application of the weapon system across the air, space, and cyberspace domains;" and

b. "An operator is an Airman with specific credentials that has an understanding of the cross-domain environment, that controls a weapon system creating desired effects (kinetic or non-kinetic) on the joint operational environment (battlespace), either through physical, virtual, or remote control means, in support of a joint force commander's directives/objectives."

The Air Force Research Institute believes the preceding two definitions of an operator were too tactical in concept, so it said "an operator is a credentialed Airman [who is] able to advocate cross-domain capabilities, create desired effects, and influence the joint environment through the integration or employment of a weapon system(s) across air, space, and cyberspace domains in support of a joint force commander's objectives."

Cross-domain Competencies

> *I like the proposal for cross-domain competence and a deliberate way to get there. Ultimately our operators need to be able to integrate the capabilities from all the domains.*
>
> —Anonymous

> *Cross-Domain development is only a slightly different construct from what we set out to do 12 yrs ago … we haven't ignored this; we just haven't followed through with what we started.*
>
> —Anonymous

Following the development of a definition of an operator, the workshops discussed operator competencies. In the context of the

"Future Operator Symposium," competencies are demonstrated knowledge, skills, and abilities (developed through education, training, and experience) needed to successfully perform particular tasks. At the tactical level, competency development is usually focused on technical proficiency and the mastery of a particular weapon system. The obtained expertise provides the foundation for future cross-domain operator development.

Each workshop independently determined the essential cross-domain competencies that an operator must have for success in a joint environment. An abundance of data resulted. However, synthesizing the inputs resulted in the identification of nine specific area competencies. These areas include the following as outlined in figure 5:

a. Technical Expert
   - Above all else, must be a weapon system expert (technical expertise)
   - Must embrace technology

b. Service Expert
   - Must know and understand USAF doctrine
   - Must know and understand USAF roles, missions, and capabilities
   - Must know and understand the USAF core functions

c. Cross domain
   - Must understand and apply cross-domain integration
   - Must perform integrated mission planning
   - Must understand cross-domain capabilities and limitations

d. Environment
   - Must maintain situational awareness
   - Must know and understand the threat/enemy
   - Must understand the overall context of complex operations

e. Jointness
   - Must know and understand joint doctrine and joint processes
   - Must articulate the joint perspective
   - Must understand and use the common/joint language
   - Must leverage Air Force operations into joint operations

f. Communication
   - Must understand the basic tenets of command and control (C2) and C2 relationships
   - Must be able to integrate C2
   - Must have the ability to brief and debrief missions (internalize the lessons learned)

g. Leadership
   - Must make decisions in a complex, volatile, and dynamic environment
   - Must build and work in teams
   - Must have effective interpersonal skills
   - Must have a warrior ethos

h. Self-awareness
   - Must know own strengths and weaknesses
   - Must self-critique and accept feedback

i. Critical Thinking
   - Must be a problem solver
   - Must envision second/third order effects
   - Must have cognitive ability and mental agility

Cross-domain Force Development Path

Cross-domain operator development should be a deliberate process that is supported by a balance of training, education, and assignments. Furthermore, this developmental process should not diminish or marginalize an individual's foundational technical and tactical development. Individuals should remain focused on mastering their weapon system in whatever domain(s) the system operates. Therefore, the transition point from a specific weapon system to the cross-domain environment should occur after the mastery is complete which is approximately at the 10-year point. This coincidently equates to the time an individual attends an intermediate developmental education school such as Air Command and Staff College (ACSC).

Once a decision is made for a person to enter a cross-domain career track, the Air Force must show that it values and rewards these operators. An "assign to, promote from" is one way to indicate a value on the career development path. However,

Figure 5. Future operator competencies

several approaches abound regarding how to develop a cross-domain environment. Following is a discussion on the results of the "Future Operator Symposium."

Background

Training, education, and experience comprise the three pillars of force development. Effective cross-domain development must include these three areas. Furthermore, the three pillars of force development are interdependent. Therefore, any discussions or recommendations on force development must consider a holistic view of these relationships.

Each workshop provided extensive data surrounding cross-domain operator development path recommendations that spanned the entire career of an Airman. Many of the workshops recommended that every Airman (officer, enlisted, and civilian) receive cross-domain awareness upon entry into the Air Force

and continue learning throughout his or her career. This could be accomplished through common core courses so every individual learns about other careers, specialties, and/or domains. In fact, one theme suggests that capabilities of the domain competencies be introduced in pre-accession programs like Air Force Reserve Officer Training Corps, Officer Training School, and Basic Military Training. Furthermore, certain relevant cross-domain information and training should be introduced during technical training, but not to the level that it detracts from or marginalizes the technical development of an individual. These few ideas support a scenario whereby Airmen are cross-domain developed to some degree of awareness.

As for training, a few groups recommended that the Air Force adjust its training paradigm by creating more combined courses so both officers and enlisted members receive cross-domain education and training. Yet the workshops recommended that advanced or upgrade training take place only after the individual had mastered a specific weapon system. For most, this occurs at the 8-to 10-year career point. Regardless of when an operator enters the cross-domain environment, his or her mind-set is one of continuous learning while continuing to build on the foundational technical knowledge. Before reaching a point of tactical expertise, operators should develop a basic understanding regarding applications of the other domains as they apply to their own weapon system or specialty. Understanding each domain's capabilities is beneficial at all levels of war, from strategic planning to tactical employment.

Training

The consensus permeated the workshops that cross-domain operator development should include some type of flag exercise that allows operators to implement their new competencies/skills. Specifically, flag exercises focused on operator development would provide the training environment for cross-domain integration. Other options recommended included developing exercises in the space and cyberspace domains where all three domains are brought together similar to Red Flag. This scenario-based training can either be actual integration of weapon systems, simulated/virtual, or a combination. However, several workshops

cautioned against an exclusively computer-based cross-domain operator training structure. Regardless of the instructional methodology, the training should allow the operator to both develop and apply critical thinking and decision-making skills in a dynamic cross-domain environment.

Attending an Air Force weapons school and/or flag exercise enhances training, especially at the application or tactical level. However, the Air Force must guard against the halo effect that often positions those selected to attend a weapon school or flag exercise as better than those who did not have the opportunity.

Some workshops recommended that operators across all domains be sent to major theater exercises (Austere Challenge, Terminal Fury, and Red Flag) for the sole purpose of observing the other domains in operational-level planning cells. This would be supported by each domain having a dedicated instructor to help the operators understand the specific domain without interfering with any air operations center (AOC) operations. Some highlighted that the 505th Command and Control Wing at Hurlburt Field, Florida, conducts similar operator training at the tactical level. These exercises are essential to expanding cross-domain knowledge beyond professional military education (PME) or any other education by adding a practical application to the obtained knowledge. Still, this is only one move in the right direction. The true development happens in real-world experiences.

Credentialing: The Crucible (A Cross-domain Operator School)

One key aspect of a cross-domain development is that the individual should be credentialed by completing a crucible event. Some workshops recommended that a patch be developed similar to the Weapons School patch. Others recommended an ASFC modifier that identifies the individual as cross-domain qualified.

This crucible event would be a cross-domain operator-focused school that incorporates both education and experience. It would mirror the current weapons-school structure but would culminate with the cross-domain operators functioning in their respective operational–level roles in a simulated AOC. In doing

so, they will demonstrate that they can integrate the capabilities of all three domains to achieve specific effects (kinetic or non-kinetic) on the battlespace.

Another idea was that instead of an Air Education and Training Command formal training course, the Air Force should establish a civilian or contractor corps comprised of retired Air Force operators in each domain (much like Weapons School CBD Training, Inc.). These contingents could be at selected locations and provide training of other domain competencies to the operators.

Education

Air Foce Space Command currently offers Space 100-, 200-, and 300-level courses from four to five weeks. There is no reason the cyberspace and air domains cannot do the same for their operators. Several workshops concluded that interactive training about cross-domain knowledge/experience for the future cross-domain operator could be developed within existing courses. However, this would require an extensive review of training programs in all three domains, such as Space 100, 200, and 300, and compare the training objectives to the required cross-domain competencies. These courses could serve as prerequisites to the credentialing or crucible event.

Some workshop participants stated that the basic concepts and the tools for cross-domain education already exist. For example, the broad nature of Air Force PME curricula extends its relevance to all Airmen, as well as joint and international students, regardless of their specific duties. Cross-domain development could utilize the existing PME structure to educate operators. However, some adjustments would be necessary. Considerations include expanding some of the offerings, adjusting the timing for the education, and including more exercises that emphasize cross-domain capabilities and application. Conversely, other workshops recommended more extreme solutions.

Many of the participants recommended that all PME and professional continuing education (PCE) curricula deliberately support cross-domain awareness, competency development, and integration throughout the Air Force. Some workshops

suggested that for proper timing of cross-domain development, the content of the Air and Space Basic Course (ASBC) and Squadron Officer School (SOS) curriculums be reversed. The argument is that the initial education of officers should be focused on such subjects as leadership, team building, self-awareness, and communication. Instead, the ASBC curriculum is centered on Air Force organization, functions, capabilities, and doctrine. Although extremely important, the material young officers are exposed to during ASBC is rapidly replaced by the demands of their tactical and technical development. Therefore, the ASBC curriculum would be more timely, and enlightening, if it were presented during the latter phases of that tactical/technical development period. It would reinforce, within context, the specific roles, responsibilities, and capabilities of the Air Force. It would also provide some initial insight into the cross-domain environment. Conversely, the leadership and team work focus of SOS should be introduced at the beginning of an officer's career (i.e., less flickerball and more space and cyberspace), where they can more readily benefit and use the knowledge. For most officers, the material covered in the SOS curriculum occurs too late.

Along the same lines, some workshops offered thoughts concerning the Air Force Intermediate Developmental Education (IDE) and ACSC. Some of the participants recommended that the ACSC curriculum be adjusted to support cross-domain education but only to a point of not adversely affecting the joint educational requirements. Another option is that a cross-domain track be developed within ACSC for those officers and others selected for cross-domain broadening. For example, an air domain operator would minor in a cyber or space domain. Other workshops participants recommended placing more rigor into ACSC to include exercises where students receive the cross-domain operator or the operations master's degree.

Other ways of enhancing PME at the appropriate levels (officer and enlisted) include allowing advanced options within a particular domain that support both officer and enlisted integrated education. In addition, cross-domain subjects could be emphasized at the senior enlisted PME schools. Or, as was also suggested, the creation of a cross-domain college would not

only focus the curriculum on cross-domain but would also integrate Airmen in a holistic manner.

Distance learning options that target the cross-domain development path were included in the recommendations. The curriculum could be developed to contribute to a specific cross-domain advanced degree. In addition, the courses would be provided on a volunteer basis but would also serve as prerequisites for follow-on attendance to IDE in the operator track. Furthermore, these distance learning courses could be required for follow-on cross-domain operator development. In effect, operators could self-select into the cross-domain operator development path. Regardless of the method of obtaining education, the PME process is not long enough nor detailed enough to be the sole source for cross-domain operator development.

Regardless of the adjustments or developments in PME, cross-domain education should be offered at the appropriate level of an individual's operational experience. Some of the more advanced PME courses would be officer-specific, whereas the earlier courses could be presented in an integrated manner (officer and enlisted). This would support the concept of Airman cross-domain awareness development.

Experience/Assignment

> *The epitome of a cross-domain operator is the UAS guy—you need VOIP, chat, JWICS, SIPR, imagery, satellites, all that stuff—it's a huge cross-domain. The guys who come out of that know a whole lot. They don't know how to launch a satellite, but they have good hands-on knowledge.*
>
> —Future Operator Symposium Workshop Input

The third element of force development is experience. Assignments allow individuals to apply the training and education they have received towards actual challenges. In addition, the assignments and associated experience assist in the professional growth of the individual. The force development construct should allow operators to develop awareness, knowledge, leadership, expertise, integration, and application of capabilities in and across all three domains.

Our current force development system allows many colonels and generals opportunities to transition into another domain. However, since the assignments are not part of a focused developmental system, many senior officers jump into the new domain with little or no training or experience. Although they are functioning in a cross-domain environment, they are not fully developed cross-domain operators. Therefore, cross-domain operator development requires a departure from the traditional operator career path and the coordination between several development teams. In short, it requires significant attention and oversight.

Almost every workshop highlighted that cross-domain operator development should not occur during the first 6–10 years when operators are learning their technical/tactical skills. Before transiting the cross-domain environment, operators must become technical experts in their respective weapon system. Most workshops stated that the correct time to move into cross-domain development was at the major level. However, the workshops also stated that cross-domain awareness and specialty courses be available to company grade officers but not to the degree that it affects or marginalizes their technical/tactical development.

The cross-domain operator program must be based on a deliberate selection process. The Air Force should develop methodology that predetermines cross-domain operator candidates while they are company grade officers. While it is important that company grade officers become the best weapon system operators they can, they should also be provided cross-domain education and experience opportunities during their early developmental years. Several workshops recommended having cross-domain courses available through distance learning that also have college credit associated with them. Furthermore, these would be self-selected courses and would serve as prerequisites for making the cross-domain transition. Other workshops recommended developing a cross-domain school that would focus on education and developing specific skills required for cross-domain planning and integration at the operational level. For example, spending some time in an air operations center or component-numbered Air Force would be part of the school's curriculum. Other suggestions on how cross-domain operator candidates could be identified would be through

fellowships or specialized PME tracks. Some even suggested that certain cross-domain fundamental courses be taken and assessed prior to promotion to captain.

Despite the critical developmental period, between the six–to 10-year point, operators should be able to participate in cross-domain tactical exercises to gain experience in integrating weapons systems into cross-domain operations. In addition, during this time, the operator will gain experience as an instructor and/or evaluator. After achieving instructor/evaluator status, the operator's career path should be determined by a development team to either become specialized in one area (depth) or take a broader career path (breadth). Several workshops also recommended that some career broadening should occur (staff, exchange, and deployments, etc.) within an individual's domain.

When discussing training, some workshops suggested immersion into the secondary domain in the venue of deployments away from their primary domain. Orientation tours of a few months up to a year were discussed. A more formal type of developmental program would be to create special duty assignments for cross-domain operators where they leave their primary domain but return to their domain following that assignment.

For those officers selected into the cross-domain operator development path, career broadening assignments should be managed assignments in other domains. Some recommended creating a specific AFSC for cross-domain operators while others recommended creating a prefix/suffix for an existing AFSC. However, many of the workshops identified current operators from any of the 1XX career fields that already fit the definition.

The Air National Guard and Air Force Reserve pose unique challenges to cross-domain development. One noted example is that experience tied to assignments may not be a viable option because by design the Guard and the Reserve do not have as many assignment opportunities as the active duty Air Force.

Establishing a force development continuum will be a challenge. In addition to a tribal mentality, the personnel available for cross-domain operator development are limited and present insurmountable challenges with balancing the right numbers across all three domains. In addition, the time constraints will

have a negative impact on cross-domain operator career development unless a separate system is developed.

Cross-flowing from air into the space or cyberspace domains may be easier than taking someone from space or cyberspace and assigning that person to the air domain. Most air operators use some form of air, space, and cyberspace integration during each mission. In addition, the training, coupled with the operational experience, facilitates the development of certain cross-domain skills and awareness. The same is not true for someone entering into the air domain. The latter may extend training and education and require specialized attention similar to that provided the remotely piloted aircraft beta test individuals (nonrated officers trained to fly the remotely piloted aircraft).

Similar to the requirements of rated currency, cross-domain operator status expires if not used. This requires the establishment of a tracking system and a standardization/evaluation function to assess currency/competency. Similar to the Army's combat arms search and support structure, a cross-domain operator could be certified and awarded a universal badge based on his or her experience, aptitude, and performance. This could be applied to both officer and enlisted cross-domain operators. For example, the Army may have only one officer and 20 enlisted pilots for four to five helicopters.

Force Development Paradigms

Three major philosophies were offered to construct a force development model. The first recommendation is that the cross-domain operator development model be based on five pillars: offensive, defensive, domain and battlespace awareness, culture, and leadership. Development would include education, training, and experience in each of the five major areas.

Another primary focus is actually a combination of the following considerations:

1. Don't lessen the primary expertise.
2. Develop professional education and exchanges with other branches, domains, government organizations, and foreign militaries.
3. Include elements of cross-domain awareness into such PME schools as Airman Leadership School, Noncommis-

sioned Officer Academy, Senior Noncommissioned Officer Academy, Squadron Officer School, Intermediate Developmental Education, and Senior Developmental Education.
4. Develop wing- or below-level positions serving in another domain in that capacity.
5. Reevaluate/generalize AFSC requirements for staff positions.
6. Supplement current PME with cross-domain requirements (for selected cross-domain operators).
7. Create distant learning modules/curriculum (Squadron Officer School and others) for annual refresher or just-in-time training.
8. Put required information in one location (Knowledge Exchange, Air Force Portal, etc.).

Lastly, the third overarching construct recommended a cross-domain operator development pyramid which included the following levels:

1. Place knowledge (PME, training, etc.) as the base of the pyramid.
2. List exposure (training, exercise, deployment, and PME) as the second level.
3. Ensure that understanding (PME, training, deployment, assignment, and exercises) is the mid-level.
4. Position competence (assignment, deployment, PME, and training) as the next to highest level.
5. Expertise (if at all) is the apex.

Culture

The US Army soldier focuses on how to save lives, but the USAF mentality is on how to save our careers.

—Future Operator Symposium Workshop Input

Patch wearers are the pinnacle of today's operators; the operator is the Weapons School graduate. However, badges do not define the future operator. Future operators can be either rated or nonrated, officer, or enlisted. There needs to be a shift from current thinking of who is an operator.

To fully integrate the notion of a cross-domain operator, the culture of the Air Force must change. The Air Force will move

towards a more representative leadership structure. It must value and reward the cross-domain operator and have a paradigm shift away from having all senior leaders being just specialists or just flyers. This will require early cross-domain development. In addition, the importance of developing a solid culturally accepted foundation and career path cannot be underestimated. Leadership, at all levels of the Air Force, needs to fully support the cross-domain development for such a shift to occur. Most officers spend their whole career getting to a job that gets them to the next job. It's the culture of the US Air Force. In fact, the rated community is stove-piped so that a fighter pilot doesn't want to become a tanker pilot; nor does the system value such a career-path change. Unless Air Force career development changes, operators will remain in their stove-piped/tribal career paths. Therefore, the Air Force needs to recognize that leaving one's tribe/community should not deter career progression. So important is this thought that one workshop asked that senior leadership publish a memo stating that cross domain is *the* path to take to make it to senior leadership positions. Note that operators know, and are reassured, that they will be rewarded by going cross domain. In addition, wing leadership must endorse base-level cross-domain competency development. It is vital that the Air Force incentivize cross-domain exposure to ensure success.

The Air Force has tribes currently thinking strictly within their own paradigm. Requirements suggest that the Air Force needs cross-domain operators who understand how their actions (employment of their own weapon system) affect other systems, services, domains, and operators. The following questions sum up some of the seminal thinking at the symposium:

- Is it time for us to organize ourselves into a cross-domain Air Force?
- Should the Air Force structure reflect the three domains?
- Is it time for the Air Force culture to change to be a cross-domain command force?
- Is the Air Force willing to change the old thinking where leadership positions will always come from the fighter community?

- How are we preparing individuals for leadership positions from other domains?
- How do we reward the cross-domain experience? We need to make it worth doing.
- Do we want to tell some they are operators and others they are not?
- Is the current system broken, or is the culture broken?
- Are we inventing a new culture, or are we redefining the current parameters of the current operator culture?

Several workshops recommended pushing the major's promotion board back to the 11-to 12-year point to give company grade officers an opportunity for cross-domain integration in a third tier. Then, once they are field grade officers, they can use experience combined with education as operators and staff members.

One workshop posited that the Air Force has a limited number of combatant commands because of the existing fighter mind-set. It suggests an attitude that any cross-domain experience is frowned upon. This is unfortunate because a large portion of the effects in the battlespace requires a certain degree of cross-domain application and integration. Being a cross-domain operator concerns developing a certain mind-set. Rather than "fly, fight, and win," the attitude should be "give me an enemy and I will defeat that enemy with this capability."

Summary

Air Force Operators protect the United States and its global interests by conducting global, regional, and tactical operations in and through air, space, and cyberspace, in concert with national instruments of power, U.S. partners, & sister services.

—Robert J. Elder
Lieutenant General, US Air Force

The old paradigm of looking at potential conflict as either regular or irregular war, conventional or unconventional, high end or low, is no longer relevant.

—Secretary of Defense Robert M. Gates

The cross-domain force development construct should become imbedded in the Air Force culture as a deliberately managed, valued, and rewarded career progression. However, it should not be implemented to detract from an operator's technical/tactical development. It is imperative that an operator specialize in his or her own weapon system before going in to the cross-domain operator certification program.

The cross-domain training, education, and experiential developmental program should build on the operator's primary domain. The force development path for the future cross-domain operator should not be limited to education. Developers should implement a path through application, experience, and information with multiple learning environments or learning tool types. This development should include interactive learning modules, computer-based training, personal experience, and scenario-based training that allow the operator to apply decision-making techniques. The goal is to develop an individual with the knowledge, experience, skills, and competencies needed to achieve the desired specific operational effects in the battlespace in support of a joint force command. It is not about achieving specific tactical effects but the integration and synthesis of all domains to create lethal or nonlethal effects.

The Air Force should make cross-domain awareness part of the training and education systems (basic military training, specialty courses, and PME). As technologies continue to be developed and our roles in supporting operations in Iraq and Afghanistan continue to evolve, the importance of understanding cross-domain capabilities will continue to grow. Therefore, all Airmen, regardless of their AFSC, must understand how the cross-domain environment supports our daily operations across the full spectrum of operations. This can only be accomplished by changing the overall Airman developmental foundation and structure.

Finally, the Air Force, as an institution, must value and reward cross-domain operator development. The individuals selected for this specialized career path must share the same promotion, education, and command opportunities as their peers.

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Title of Paper: Future Operator Symposium Proceedings

Authors: David "Scott" Johnson, Colonel, USAF, retired; Brian Landry, PhD, Lieutenant Colonel, USAF

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