OVERCOMING THE SUPPORT FOCUS OF THE 17D CYBERSPACE OPERATIONS CAREER FIELD

GRADUATE RESEARCH PROJECT

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Abstract

The Cyberspace Operations Officer (17D) career field has lost its identity. The purpose of this research was to examine how the Cyberspace Operations career field can overcome the support focus so that emphasis can be placed squarely on operations in order for individuals in this career field to become productive members of the Cyberspace Professional Workforce.

The problem stems from the fact that the entire support-focused 33S Communications and Information Officer career field was transitioned to the operations-focused 17D Cyberspace Operations Officer career field. Although the increased operational focus is laudable, the legacy support duties from the Communications and Information field still remain. As a result, 17D Cyberspace Operations Officers are still responsible for performing these legacy duties even though they are not cyberspace related. In other words, the new operational career field is still responsible for performing a support mission.

The study makes a recommendation to move these duties to the Force Support career field to appropriately align them with a support career field which will allow the Cyberspace Operations officers to focus on operations as was intended in the Air Force Roadmap for the Development of Cyberspace Professionals 2008-2018.

Dedication

To my Mother and best friend who have been there for me through both the good times and the bad. I love you both!

Acknowledgements

I would like to take this opportunity to thank my family and friends for all of their support they have given me not only during this program, but through everything I do. I know I haven't had much time to dedicate to all of you this year, but your ability to continue to be patient, understanding, and loving keeps me smiling every day. I would also like to thank my fellow Cyber Warfare Intermediate Developmental Education classmates of 2010-2011 for always making every day entertaining.

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Katrina A. Terry

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Overcoming the Support Focus of the 17D Cyberspace Operations Career Field

I. Introduction

> *Cyberspace Professionals are part of an organized, trained and equipped force capable of integrating, synchronizing, and executing sustained cyberspace operations across the full spectrum of conflict. Cyberspace Professionals will employ cyberspace warfare capabilities through operations designed to achieve strategic, operational, and tactical objectives* (Department of the Air Force, 2008).

1.1 Background

On 21 April 2010, Air Force Chief of Staff, General Norton A. Schwartz, released a memorandum that set forth guidelines and addressed eligibility requirements for officers working in the Cyberspace domain. On 30 April 2010, over 3,000 communications officers had their 33S - Communications and Information officer designation replaced with the new designation of 17D - Cyberspace Operations Officer. A new focus was given to these Cyberspace Operations Officers to shift from the previous mission support mindset to a focus on operations. A new occupational badge was also created for the newly established career field with a mandatory requirement for all 17D officers to meet the necessary training to wear the badge by 1 October 2011 (Rolfsen, 2010). On the surface, the intent of moving all former Communications and Information Officers into the new cyberspace field may appear to be simply a refocusing of the communications professionals from their traditional roles to their new operational roles in the cyberspace domain. However, the entire posture of the Communications and Information career field has significantly changed.

Prior to the conversion, communications activities were support-related and managed by the Secretary of the Air Force Chief Information Officer (SAF/CIO) A6 community. With cyberspace being introduced as an operational domain, the newly defined cyberspace activities are now operations-focused and are being driven by, and are the responsibility of the Operations/Plans A3/5 community.

1.2 Purpose

The Cyberspace Operations Officer career field is in danger of losing its identity. Although the new career field is intended to be operations-focused, the members of the career field are still responsible for performing the legacy support-focused duties that are held over from the former Communications and Information career field. Some of these duties are not related to cyberspace operations in any way. This study examines how the Cyberspace Operations career field can overcome this identity crisis and allow the career field to become more operationally focused. This would help Cyberspace Operations Officers better understand their role in the Air Force hierarchy.

1.3 Scope

The scope of this research is focused on identifying how the duties of officers carrying the 17D Cyberspace Operations Officer Air Force Specialty Code (AFSC) must be redefined as the Air Force advances in today's world of cyberspace. Specifically, the research focuses on examining the non-cyberspace related support roles previously held by the 33S Communications and Information Officer AFSC and determining how those duties should be better aligned with an appropriate support related career field. The study

also examines the method used to transition the 33S career field, which in years past was strictly a support-focused career field, to the 17D career field, which is focused on operations.

The wear of the Cyberspace Operations Officer career field badge and Communications and Information career field badge is referred to extensively in this study. However, the intent is not to focus on the physical wear of the badge itself. Instead, the wear of the badges and the implementation of the new Cyberspace badge are used to illustrate the problem surrounding the loss of the identity of the career field formerly known as Communications and Information. Although enlisted Air Force members were greatly impacted by the Cyberspace transformation, this research focuses only on the impact this transition has had on the officers.

1.4 Organization

The research is divided into six parts that are built on one another to lead to the conclusions and recommendations developed for the research problem. The first part of the study is presented in Chapter II and provides details on how the decision to operationalize cyberspace was made. This chapter explains what is meant by the term "operationalize" from a military perspective and provide an overview of the method used to move in this direction. The chapter also discusses the similarities between the operationalization of cyberspace and the operationalization of space, since the space model was used as a template for operationalizing cyberspace.

Chapter III addresses the need to establish a Cyberspace Professional Workforce in response to the decision to operationalize cyberspace. The chapter provides an

overview of the organizational structure that governs the workforce. It provides information on how 24th Air Force was formed as well as roles and responsibilities for the Cyberspace Professional Functional Authority (CPFA) and the Cyberspace Functional Authority (CFA).

Chapter IV provides insight into the roles and responsibilities of the Cyberspace Operations Officer career field. It provides a description of the three AFSCs within this career field as well as information on other responsibilities performed by members of this field. The chapter ends with a discussion of the training required for and career field badge worn by members of this career field

Chapter V provides information regarding how the transformation from the Communications and Information career field to the Cyberspace Operations career field occurred. This chapter begins by providing a history of how the Communications and Information career field has evolved over the years, to include the recent transition to the Cyberspace Operations career field that occurred in April 2010. The chapter also details some of the required training for the new career field, as well as the development of the new Cyberspace badge and a background on the mission support focus of the Communications and Information career field from which the Cyberspace Operations career field evolved.

Chapter VI of this study details the issues surrounding this transformation, to include issues regarding the divided focus areas of the career field and how the technical expertise is being diluted. To support these issues, perspectives from leaders in both the A3/5 community as well as the A6 community are discussed.

Finally, Chapter VII of this document concludes the study by suggesting recommendations for resolving the issues discussed as well as suggestions for future research.

II. The Decision to Operationalize Cyberspace

This chapter discusses the decision that was made by Air Force senior leaders to operationalize cyberspace. The chapter provides an explanation of what it means to operationalize cyberspace from a military perspective as well as provide insight into the Air Force plan to achieve this goal, including a brief examination of the parallels between the method that was selected to operationalize cyberspace operations and the method used to operationalize space operations.

2.1 What Does it Mean to Operationalize Cyberspace?

> *There is no exaggerating our dependence on DOD's information networks for command and control of our forces, the intelligence and logistics on which they depend, and the weapons technologies we develop and field. In the 21st century, modern armed forces simply cannot conduct high tempo, effective operations without resilient, reliable information and communication networks and assured access to cyberspace* (Department of Defense, 2010).

After conducting extensive research on the subject, Senior Air Force leaders recognized tremendous benefits could be provided to the warfighter if steps were taken to operationalize cyberspace. In the military sense, "operationalize" means applying the rigor, precision and discipline to processes commensurate with their importance (Department of the Air Force, 2010). Additionally, it means bringing standardization, operational planning processes, and a "mission-focused" mindset to achieving supported commanders' objectives.

The Air Force has operationalized Air and Space operations because of lessons learned associated with success and failure in those domains (Department of the Air

Force, 2010). Since these domains have been successfully operationalized from a military perspective, Air Force leaders determined the operationalization of Cyberspace should follow a similar model.

2.2 Cyberspace Workforce Development

Training the Cyberspace Workforce is divided into three categories: Initial, Unit and Specialized as shown in Figure 1. Initial and unit training give cyberspace professionals the skills to perform their jobs while specialized training prepares personnel for tasks outside of their normal jobs (Space & Cyberspace Professional Management Office, 2010).

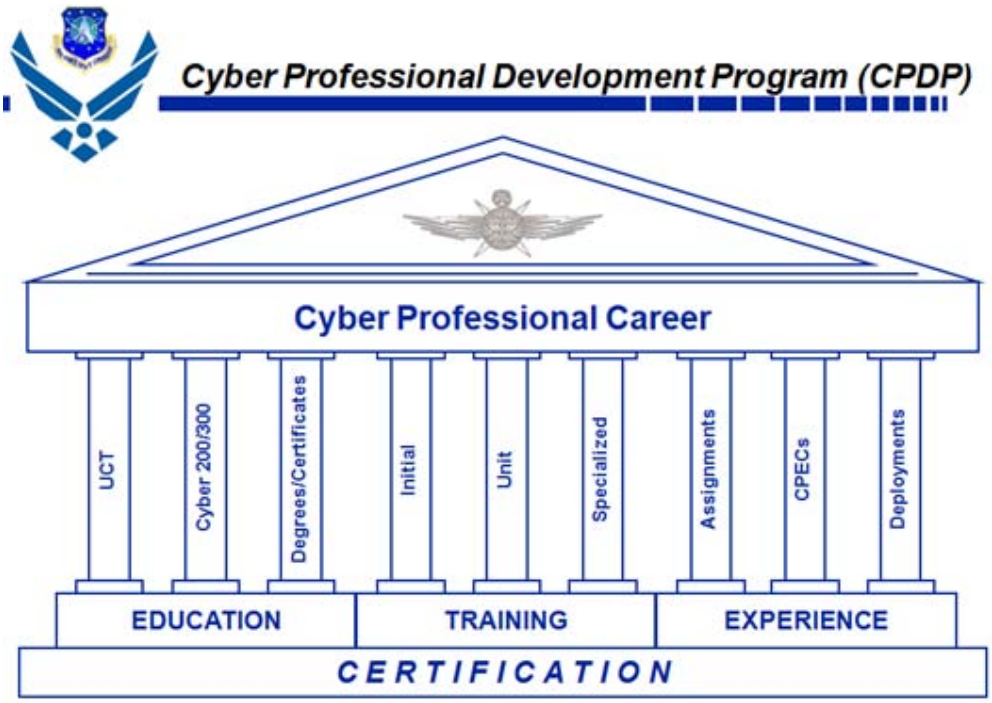

Figure 1 - Cyberspace Professional Development Program (Space & Cyberspace Professional Management Office, 2010)

The training received is focused on developing particular elements necessary for successful development of a Total Cyberspace Force. For example, in order for an officer to obtain the 17DXA – Cyberspace Defense Officer designation, the required Initial Qualification Training (IQT) training course must be completed (Department of Defense, 2008). Other examples would be the specialized training such as the Joint Cyber Analysis Course, Computer Network Operators Planner's Course, or Information Operations Integration Course that would be used to develop particular skill sets depending on the skill set necessary to perform specific duties within the Cyberspace Professional Workforce. Table 1 displays the broad overview of the training required of members of the Cyberspace Professional Workforce.

Table 1 - Cyberspace Professional Workforce Training
(Space & Cyberspace Professional Management Office, 2010)

INITIAL	- Air Force Specialty Code (AFSC) school - Initial Qualification Training (IQT) - Initial Skills Training
UNIT	- AFSC/mission specific - Mission Qualification Training (MQT)
SPECIALIZED	- Mission/position specific - Weapons School (future) - Instructor

2.3 Similarities to the Space Model

Air Force leaders viewed the global nature of cyberspace as being closely related to the global nature of space. Just as the warfighter was dependent on space assets that were not necessarily located within their immediate physical location or control, they were also dependent on cyberspace assets that were often transmitted across the globe

and beyond. Fully realizing the synergy between the space and cyberspace domains, Air Force leaders decided to realign cyberspace responsibilities and create a new cyberspace operational numbered Air Force under Air Force Space Command (AFSPC) (Kehler, 2009). Thus, in 2008, the 24th Air Force was born and was charged with the mission to provide combatant commanders with trained and ready cyber forces to plan and conduct cyberspace operations, and to extend, maintain and defend the Air Force portion of the global information grid (24th Air Force Public Affairs, 2010).

To further define the Air Force commitment to operationalizing the cyberspace domain, the Air Force Mission was changed. On September 15, 2008, the Secretary of the Air Force, Michael B. Donley and Chief of Staff of the Air Force, General Norton A. Schwartz, signed a letter simplifying the Air Force Mission, and emphasizing the Air Force's commitment to focusing on Cyberspace. Beginning that day, the new mission of the United States Air Force became "to fly, fight, and win …in air, space, and cyberspace (Donley & Schwartz, 2008). Cyberspace had definitely become operational, highlighted as one of the key domains used to accomplish the Air Force Mission. Along with that came the need to establish a Cyberspace Professional Workforce.

III. The Cyberspace Professional Workforce

> *Effective development of cyberspace capabilities encompass much more than the technology required to connect entities across the battle space. We must aggressively dedicate appropriate resources to further develop the intellectual and technical prowess that is a hallmark of today's Airmen. We must implement a force development approach that will give the Air Force a distinct advantage over any potential adversary in the cyberspace domain, just as it has in air and space. Harnessing this prowess dictates we retool our education and training programs to encompass cyberspace fundamentals* (Department of the Air Force, 2008).

The purpose of the chapter is to detail how the Cyberspace Professional Workforce is being developed. It explains the organizational structure of the workforce as well as the family of AFSCs that combine to form the total workforce. Additionally, the chapter outlines the training requirements that have been established for the Cyberspace Professionals as well as the requirements for the wear of the new Cyberspace badge and levels of certification associated with the field.

3.1 Establishing the Cyberspace Professional Workforce

In order to develop a functional Cyberspace Professional Workforce, several objectives must be met. Robust defensive cyberspace operations must be developed and an offensive cyberspace capacity must also be grown. Additionally, the mindset must be developed to fight through cyberspace attacks since the outdated mindset of disconnecting as the first line of defense is no longer a feasible option (Bolton, 2011). In order to accomplish these objectives, a new breed of Cyberspace Professionals must be developed.

The development of the Cyberspace Professional Workforce is in its infancy and will continue to evolve in the upcoming years. The Parthenon previously shown in Figure 1 gives a top-level visualization of the Cyberspace Professional Development Program (CPDP) structure, which is patterned after the Space Professional Development structure as previously mentioned.

The three primary foundations required to develop a trained workforce of Cyberspace Professionals are to establish sound education and training for the force as well as placing the members of the workforce in positions to gain the necessary experience required to be successful. The training and education requirements for developing Cyberspace Professionals are discussed in chapters two and three of this document.

3.2 Organizational Structure

The Air Force A3/5 organization oversees all air and space operations throughout the Air Force (Miles, 2006). As previously mentioned, the organize, train and equip mission for cyberspace operations was aligned under AFSPC, which under the Cyberspace Force Development approach is responsible for providing the warfighting requirements to A3/5 (Figure 2).

The AFSPC objective was clear. The expectation for 24 AF was to provide the full spectrum of cyberspace capabilities to the warfighter by planning and executing cyberspace operations and defense in order to ensure missions could be executed in a dynamic environment where the equation changes. In other words, cyberspace

operations must be accessible in situations where elements within the environment change frequently.

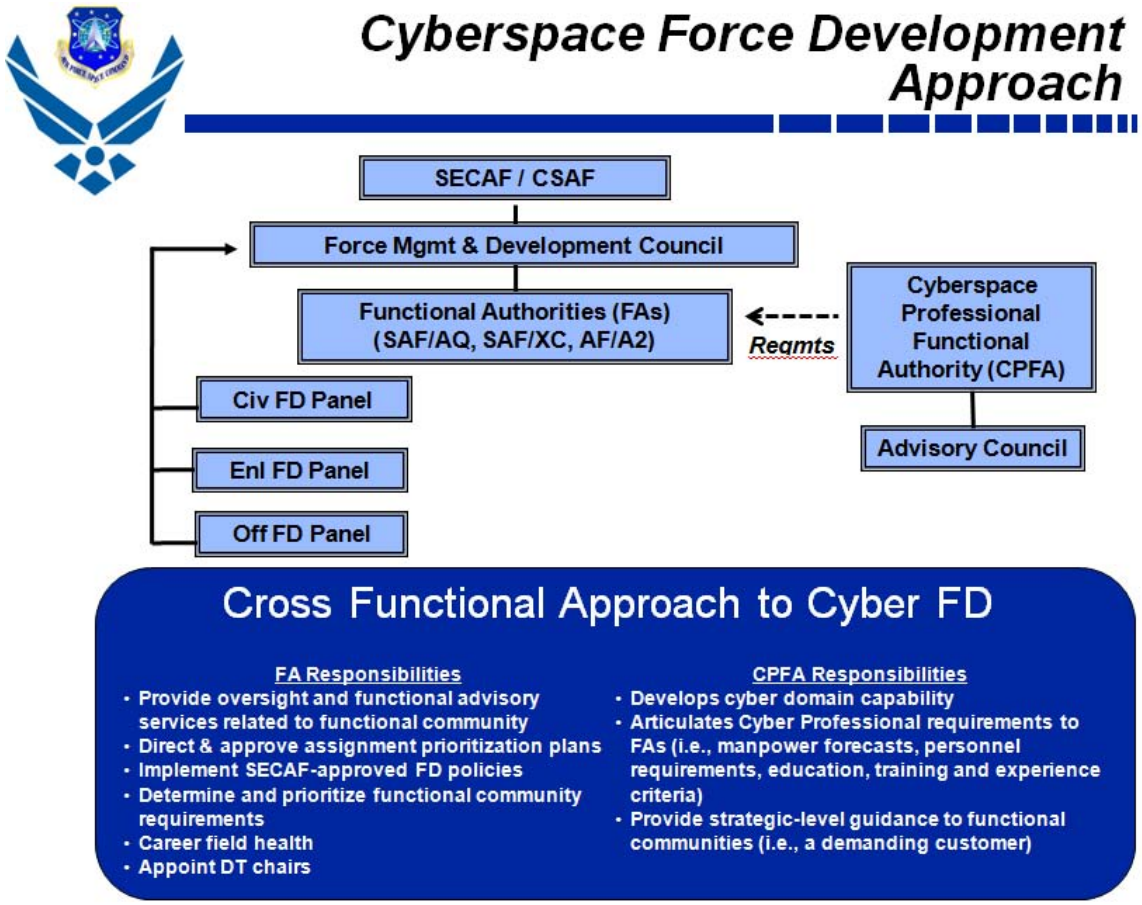

Figure 2 - Cyberspace Force Development Approach
(Space & Cyberspace Professional Management Office, 2010)

3.3 Designation of the Cyberspace Professional Functional Authority (CPFA)

The organizational structure for the Cyberspace Professional Workforce was established to manage and develop the cyberspace forces in accordance with Air Force Instruction 36-2640 – Executing Total Force Development. Because of correlations between the two communities, the Cyberspace Professional Workforce organizational

structure was modeled after the Space Professional Workforce, in which a Professional Functional Authority is established to oversee the entire workforce.

The CPFA is responsible for developing cyberspace domain capability, articulating Cyberspace professional requirements to the Functional Authorities (FAs), and providing strategic-level guidance to the functional communities that contribute to Air Force cyberspace capabilities (Cotton, 2010). The AFSPC Commander was designated as the CPFA.

3.4 Designation of the Cyberspace Functional Authority (CFA)

The Cyberspace Functional Authority (CFA) plays an important role in the development of the Cyberspace workforce as well. The CFA provides oversight and functional advisory services related to the functional communities that are defined as part of the Cyberspace Professional Workforce (Department of Defense, 2008). Additionally, the CFA is responsible for directing and approving assignment prioritization plans, implementing Secretary of the Air Force approved Functional Development policies, determining and prioritizing functional community requirements, reviewing and reporting career field health and overseeing the Cyberspace Operations Development Team (Cotton, 2010). In other words, the CFA is responsible for the overall oversight of the 17D career field and remains under the purview of the SAF/CIO (as was the Functional Authority for the former Communications and Information career field). In other words, the CFA duties fall in the support-focused A6 area of responsibility.

The management structure of the Cyberspace Professional Workforce mirrored that of the Space workforce. The intent is for both of the entities to work together in developing Cyberspace Professionals.

3.5 What is a Cyberspace Professional?

> *The Air Force will produce professional Airmen with the ability to establish, control and leverage the cyberspace domain. They will operate across a broad range of critical infrastructures, warfighting systems, and technologies and employ capabilities from airborne platforms and through space systems, from in-garrison units and from forward deployed units. They will comprise combat ready forces able to execute missions as part of air, space, special ops, and cyberspace combat missions. As a matter of necessity, these will be cross-domain professionals since it is they who will establish, control, and achieve effects within a domain upon which all forces rely* (Department of the Air Force, 2008).

The Air Force Roadmap for the Development of Cyberspace Professionals details how success in all domains--air, space, and cyberspace--is, and will be increasingly dependent upon the success we achieve in developing core cyberspace competencies in our Cyberspace Professionals (Department of the Air Force, 2008). To establish, control and project power in and through this domain, requires professionals who have the technical prowess, ingenuity, and ability to adapt and overcome the challenges unique to the cyberspace domain.

The roadmap emphasizes that this is necessary to operationalize cyberspace and must be a holistic effort and one that cannot be accomplished by any single skill set (Department of the Air Force, 2008). As a result, the direction taken to train and develop cyberspace professionals encompasses officers from a wide range of AFSCs with an

organizational structure in place to effectively manage the activities of those members of the workforce.

3.6 The Cyberspace Professional Workforce Family of AFSCs

To support the concept of developing Total Force Cyberspace Professionals, the Cyberspace Professional Workforce is comprised of much more than Cyberspace Operations Officers (17D). In addition to the Cyberspace Operations Officers, the workforce blends officers from a number of career fields: Reconnaissance, Surveillance, and Electronic Warfare Combat Systems (12R), Space and Missile Operations (13S), Air Battle Manager (13B), Intelligence (14N), Scientific Research and Development (61X), Developmental Engineer (62E), Acquisitions Manager (63A), and Special Investigations (71S) career fields. The exact number of officers from each career field necessary to perform Air Force Cyberspace Operations has not yet been determined and will be defined as the workforce develops and matures.

The exact number of those members of the Cyberspace Operations career field that are part of the total Cyberspace Professional Workforce is not relevant for the purpose of this study. The key point is to note that there is some overlap of 17Ds who are members of the Cyberspace Professional Workforce (represented by the white 17D label in the intersection of the circles in the diagram shown in Figure 3 as well as some separation. The separation consists of those 17D officers whose duties do not fall within the scope of the Cyberspace Professional Workforce, which is represented by the non overlapping area in the left circle of Figure 3. The officers who do not fall within the

scope of the Cyberspace Professional Workforce are an issue of concern that will be discussed later in this report.

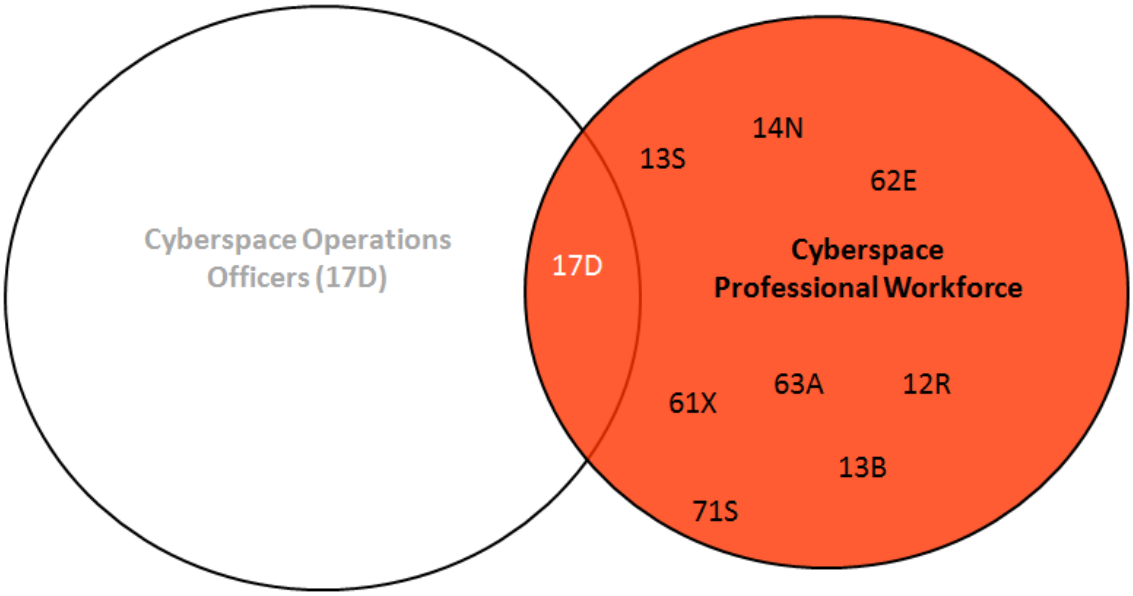

Figure 3 - Cyberspace Professional Workforce
Derived from Cyberspace 200 Course Description
(Air Force Institute of Technology, 2011)

3.7 Cyberspace Professional Training and Badge

> *"…establishment of the cyberspace badge acknowledges the Air Force's commitment to operationalize this critical domain and recognizes the expertise of our cyberspace professionals*." (Schwartz, 2010)

In April of 2010, General Schwartz outlined the requirements for officers working in the cyberspace domain to wear the new cyberspace badge. The new badge is equal in precedence to the aeronautical and space badges and is authorized three levels: basic, senior and master as shown in Table 2.

Table 2 - Cyberspace Professional Development Program
(Arata, Greenwood, & Montgomery)

CPDP Certification Level	Badge
Level 1 Education: UCT (or equivalent) Training: Current in position Experience: Ops - Combat Mission Ready; others - time in cyber billets (by AFSC, 1 year)	 **Basic** *UCT grad or Level 1 (by AFSC)*
Level 2 Education: Cyber 200 Training: Current in position Experience: Time in cyber billets (by AFSC, 5 or 6 yrs)	 **Senior**
Level 3 Education: Cyber 300 Training: Current in position Experience: Time in cyber billets (by AFSC, 7 or 9 yrs)	 **Master**

According to the Cyberspace Professional Development Program (CPDP), officers within the cyberspace profession are eligible to wear the basic badge if they have completed the X-course, Undergraduate Cyberspace Training (17Ds only) or equivalent, and have at least one year of cyberspace experience since January 1, 2006 (Williams K. , 2010). The Cyberspace 200 and 300 courses, combined with the appropriate levels of experience are required to achieve Level 2 and Level 3 certifications, as shown in Table 2.

The amount of training required to produce trained cyberspace officers is detailed and extremely focused as illustrated in Figure 4. The training begins with the Undergraduate Cyberspace Training Course (UCT) which is the introductory Cyberspace course for Cyberspace Operations Officers. The course is taught at Keesler Air Force Base, Mississippi and consists of 920 academic hours which are divided into eight

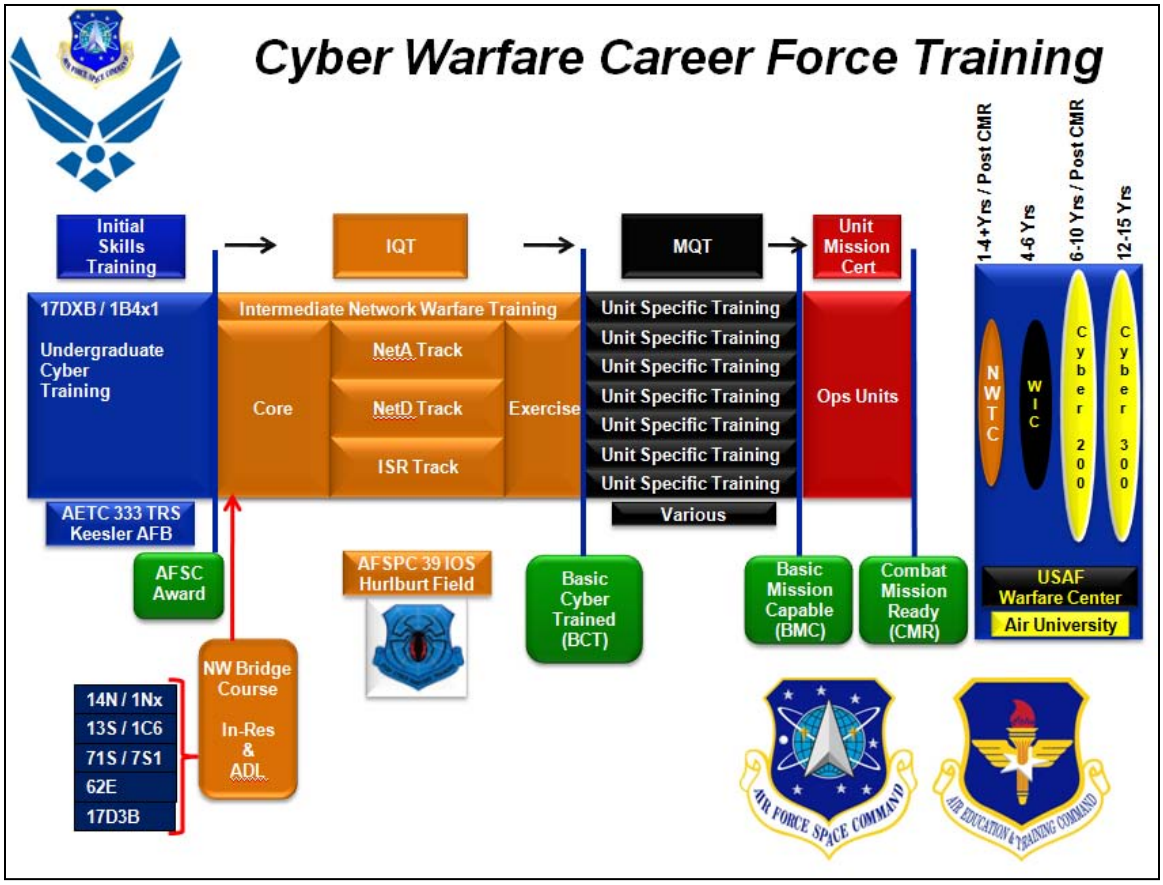

Figure 4 - Cyberspace Warfare Career Force Training
(Space & Cyberspace Professional Management Office, 2010)

operationally focused subject areas: Internet Protocol Networking; Cyberspace Fundamentals; Convergent Technologies; Deployed Operations; Information, Surveillance, and Reconnaissance; Tactics, Techniques, and Procedures; Space; and Law and Ethics. The breakdown of the emphasis placed on each one of these subject areas can be seen in Figure 5. An officer is Level 1 CPDP certified upon completion of UCT.

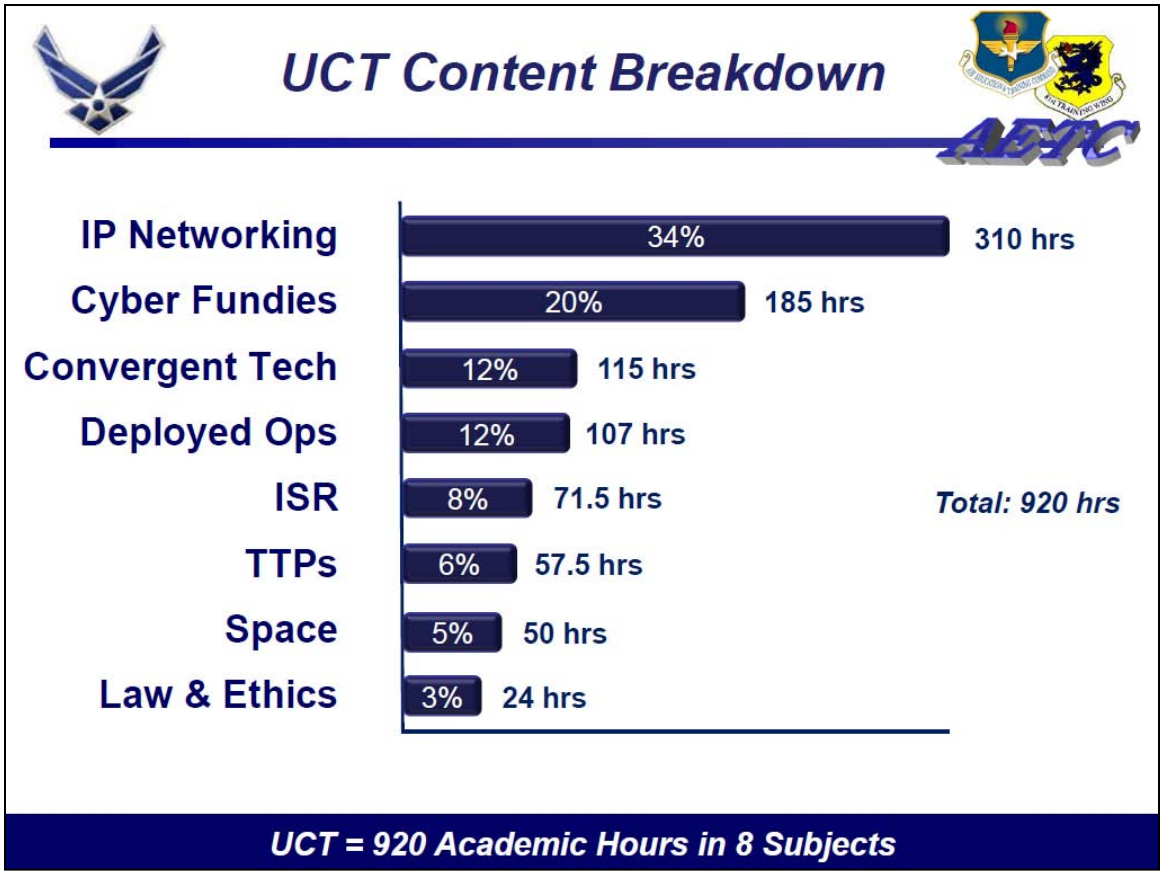

Figure 5 - UCT Content Breakdown
(Dickinson I. R., Keesler Cyberspace Education and Training Update, n.d.)

Following UCT, the Cyberspace Professionals' next level of training is the Cyberspace 200 course taught at Wright-Patterson Air Force Base, Ohio. The course is designed to enhance understanding of cyberspace system acquisitions, capabilities, limitations and vulnerabilities so cyberspace professionals can better plan, direct, and execute defensive and offensive cyberspace operations at the operational level of war (Space & Cyberspace Professional Management Office, 2010). The eligibility required to be considered for admittance into the Cyberspace 200 program can be seen in Figure 6.

Eligibility Criteria:
Officer: Level 1 Cyberspace Professional, TAFCSD of 6-8 years; minimum 24 months cyber experience
Enlisted: Level 1 Cyberspace Professional; TSgt/TSgt selects regardless of year group; SSgts with a TAFMSD of 9-11 years; minimum 48 months cyber experience (TSgt cross-trainees must have a minimum of 24 months cyberspace experience)
Civilian: GS-11 through GS-13 in cyberspace ops or acquisition positions; minimum 24 months cyber experience

Figure 6 - Cyberspace 200 Eligibility Criteria
(Space & Cyberspace Professional Management Office, 2010, p. 10)

The next course is Cyberspace 300, also taught at Wright-Patterson Air Force Base, Ohio. The course develops a more strategic focus for the integration and application of cyberspace capabilities in Joint Military Operations (Space & Cyberspace Professional Management Office, 2010). The eligibility required to be considered for admittance into the Cyberspace 300 program can be seen in Figure 3.

Eligibility Criteria:
Officer: Level 2 Cyberspace Professional, TAFCSD of 12-15 years; minimum 72 months cyber experience
Enlisted: Level 2 Cyberspace Professional; SMSgt/SMSgt selects regardless of year group; MSgt with a TAFMSD of 14-18 years; minimum 72 months cyber experience
Civilian: GS-13 and 14 in cyberspace ops or acquisition positions; minimum 72 months cyber experience

Figure 7 - Cyberspace 300 Eligibility Criteria
(Space & Cyberspace Professional Management Office, 2010, p. 10)

Upon meeting the qualifications summarized in Table 2, the officers from AFSCs identified as elements of the Cyberspace Professional Workforce are eligible to wear the Cyberspace badge. In addition to the Cyberspace Operations Officers, who are all eligible for wear of the Cyberspace badge, the additional AFSCs who are eligible for wear of the Cyberspace badge are illustrated in the shaded region of Figure 3**.**

Note that, some of the members of the 17D – Cyberspace Operations career field are included in the Cyberspace Professional Workforce. These highly-skilled officers play an important role in the development of Cyberspace Operations. For the purpose of this research, the 17D Cyberspace Operations Officers who fall under the Cyberspace Professional Workforce umbrella are labeled 17D Cyberspace Professionals and are represented in Figure 8.

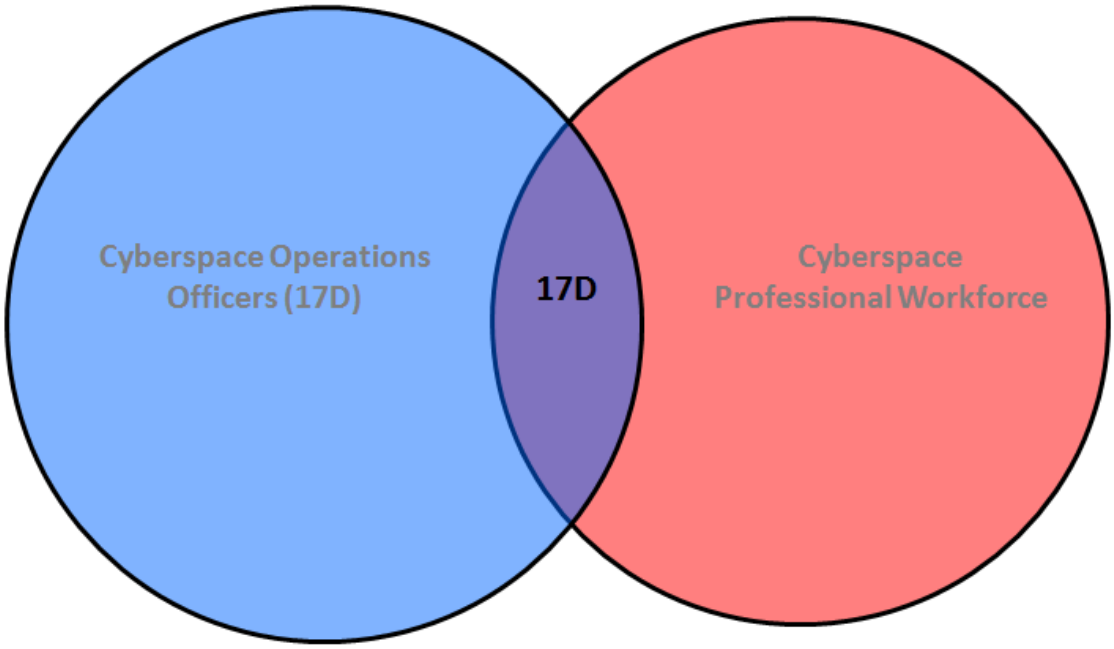

Figure 8 - Illustration of the 17D Cyberspace Professional

3.8 The 17D Cyberspace Professional

These 17D Cyberspace Professionals are not the only 17D officers in the Air Force. They are a subset of the 17D Cyberspace Operations Officer career field. The 17D Cyberspace Operations Officer career field evolved from the former 33S Communications and Information Career field. The transformation was the first step to

increase the focus on operating in the cyberspace domain and shift the mindset from mission support to operations (Maluda, 2008), and this shift began in April 2010. The actual transition from 33S to 17D is discussed in more detail in the following chapter.

IV. The Cyberspace Operations Officer

> *The Air Force's cyberspace operators must focus on operational rigor and mission assurance in order to effectively establish, control, and leverage cyberspace capabilities* (Lord, W. T., 2010).

The purpose of this chapter is to detail how the Cyberspace Operations career field is being developed. It explains the organizational structure of the workforce as well as the three distinct AFSCs that have been created to form the career field. The chapter also outlines the training requirements that have been established for the Cyberspace Operations Officer as well as the newly adopted operations focus.

4.1 The Cyberspace Operations Officer AFSCs

The Cyber Operations career field was formed to encompass all functions performed by Cyberspace Operations Officers to conduct or directly support cyberspace operations and cyberspace training. Inherently included are supervisory and staff functions such as inspection, contingency planning, and policy formulation. In order to achieve this objective, the 17D officers face different educational requirements and the expectation to see their job as operational and not strictly as one of mission support (Rolfsen, 2010). To assist in illustrating this new direction, a new career pyramid was developed with a clear operational focus outlined for all 17D Cyberspace Operations Officers to follow for their career progression (Figure 9).

Officers within this field are responsible for executing a variety of cyberspace operations and information operations functions and activities. The duties of these officers include planning, organizing and directing operations, including network attack (Net-A), network defense (Net-D), network warfare support (NS), network operations,

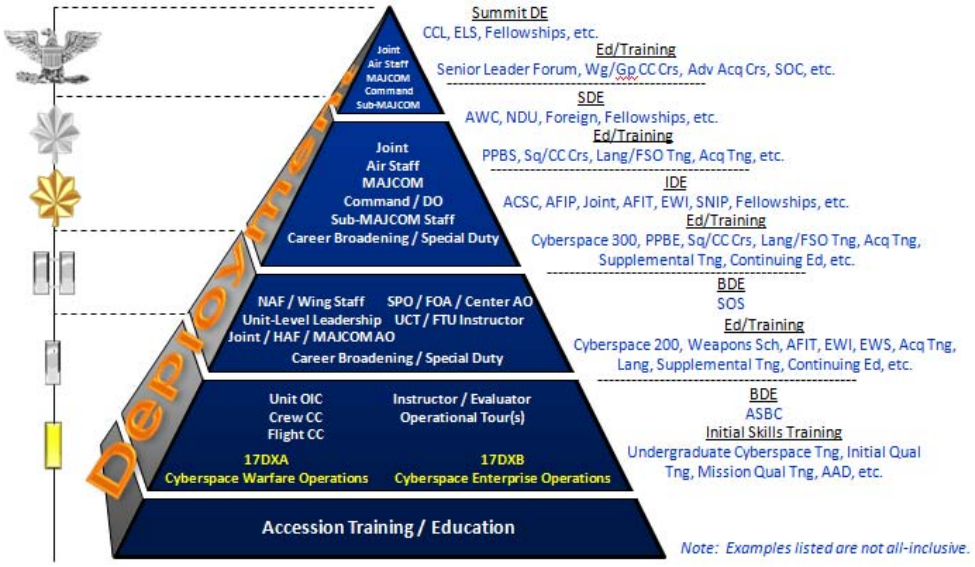

Figure 9 - Cyberspace Officer Career Path Guide (Department of the Air Force, 2010)

and related information operations. Such operations cover the spectrum of mission areas within the cyberspace domain (Headquarters Air Force Personnel Center, 2010). The 17D AFSC is depicted by the shaded portion of Figure 10.

The career field includes a command AFSC (17C0), similar to many other career fields. The other two AFSCs are 17DXA – Cyberspace Defense and 17DXB - Cyberspace Control, which perform two distinct functions in cyberspace operations (Headquarters Air Force Personnel Center, 2010). The 17DXA Cyberspace Defense Officer is responsible for active network defense, exploitation and attack. The 17DXB Cyberspace Control Officer is responsible for network operations, to include establishment and passive defense (Space & Cyberspace Professional Management Office, 2010). The two AFSCs perform very different functions and as a result require

different training. A detailed discussion of 17DXA versus 17DXB is beyond the scope of this research.

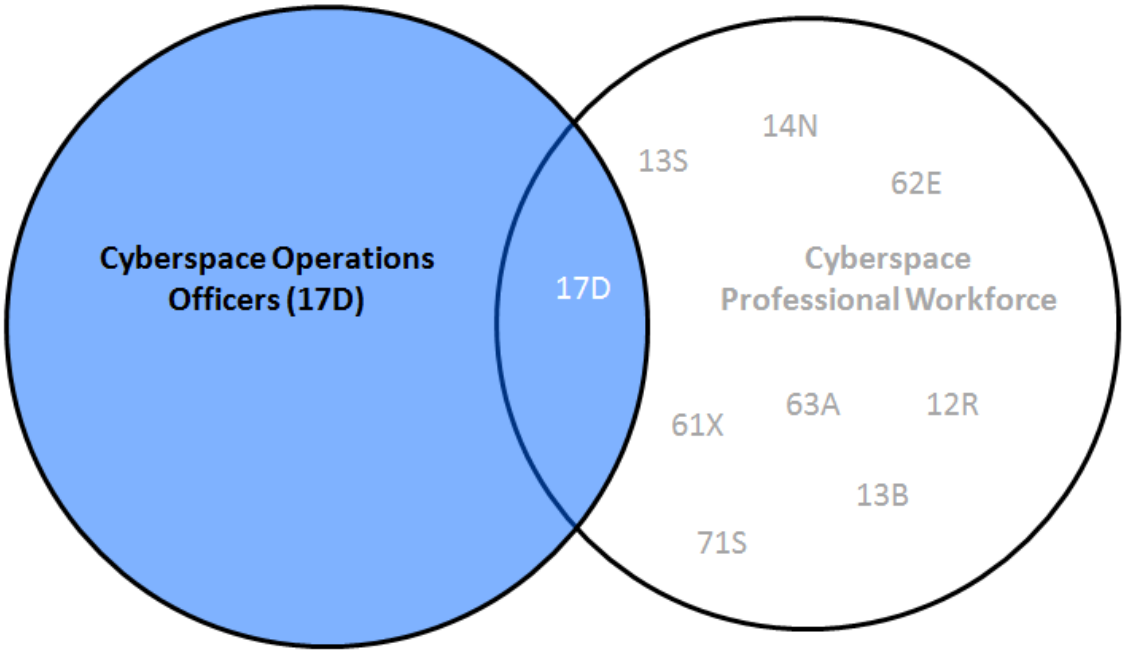

Figure 10 – Illustration of the Cyberspace Operations Career Field

4.2 Career Field Badge

All Cyberspace Operations Officers are eligible to wear the Cyberspace badge upon completion of the appropriate training as previously shown in Table 2. The badge worn by the 17D Cyberspace Operations Officers is the same badge that is worn by any other member of the Cyberspace Professional Workforce who meets the necessary wear requirements. The details of the training required to be eligible to wear this badge were discussed in Chapter III.

The reason the badge is not unique to the Cyberspace Operations Officer career field centers around the evolution of the career field from the Communications and

Information career field. When speaking in reference to the conversion of Communications and Information Officers to Cyberspace Operations Officers, Brigadier General David Cotton, Director of Cyberspace Transformation and Strategy at the Air Staff was quoted as saying "It's not just spray paint, it's a new mindset." (Rolfsen, 2010). However, it appears that in some instances, spray painting is a good analogy of exactly what has happened.

4.3 Other Duties

In addition to the duties listed in this chapter, the Cyberspace Operations Officer is still responsible for several support related duties such as operating postal squadrons, overseeing base libraries, and records management. Although these duties are not highlighted in the existing description of duties for the Cyberspace Operations Officer, these legacy support duties that were inherited from the Communications and Information career field and continue to be performed by these officers. Additional information on how these duties became part of the Cyberspace Operations career field will be detailed in the next chapter.

V. Transitioning From Communications and Information to Cyberspace Operations

The purpose of this chapter is to detail how the 33S Communications and Information career field transitioned to the Cyberspace Operations career field. The chapter begins with a history of the Communications and Information career field, to include some of the earlier transitions the career field has undergone. Included is a discussion of the timeline when these changes occurred as well as what the changes entailed (duties, name changes, etc). Next, the chapter briefly outlines the training that was required of those in the Communications and Information career field and provide a brief description of the Communications and Information badge that was awarded to all of the officers in that field upon completion of the appropriate requirements for wear.

The chapter details the transition that occurred in April of 2010 which changed all Communications and Information Officers to Cyberspace Operations Officers. Finally, the mission support focus of the Communications and Information career field is discussed, which provides the foundation for why there are issues with the transition of all 33SX officers to Cyberspace Operations Officers.

5.1 History

As previously stated, over 3,000 officers had their 33S - Communications and Information Officer designation replaced with the new designation of 17D - Cyberspace Operations Officer in April 2010. While this was a significant change, change was not new to those Airmen in what is now known as the Cyberspace Operations Officer career field. In 1986 the Information Systems career field (49XX) was the largest non-rated

officer career field in the Air Force (Snyder, 1986). It was also one of the broadest in the Air Force in range of responsibility and types of jobs having been created by merging the functions of communications and electronics with computer systems. This was only the beginning of many changes that were yet to come.

In 1993, the Air Force restructured its entire Air Force Specialty Code system of military personnel classification. During this transition, the Information Systems Officer specialty was noticeably switched to the Communications and Computer career field (Golembiewski, 2010). The biggest changes that accompanied this transition were that the Communications and Computer Officer career field became more generalized in such a way that base-level and higher-headquarters positions were completely interchangeable, not requiring any specialized training or experience that was previously needed for these positions. These changes were primarily administrative, and the individual duty titles and descriptions were not significantly altered (Golembiewski, 2010).

Just three short years later, the communications career field underwent another significant change. In 1996 the Air Force merged nearly 1,500 officers in the Information Management (37XX) and Visual Information (3VXX) career fields into the Communications and Computer career field (Morrison, 1997). All of the AFSCs and accompanying responsibilities that were previously spread throughout these three career fields were combined into the 33SX career field. The title for the newly organized career field officially became Communications and Information in recognition of the change (Figure 11).

Prior to 1996 Merger		After 1996 Merger	
AFSC	**Description**	**AFSC**	**Description**
33SX	Communications-Computer Systems Officer	33SX	Communications and Information Officer
33SXA	Communications-Computer Systems Officer, Electrical Engineer	33SXA	Communications and Information Officer, Electrical Engineer
33SXB	Communications-Computer Systems Officer, Software Engineer	33SXB	Communications and Information Officer, Software Engineer
33SXA	Communications-Computer Systems Officer, Software Programmer/Analyst	33SXA	Communications and Information Officer, Software Programmer/Analyst
37XX	Information Management Officer		
33VX	Visual Information Officer		

Figure 11 - Communications and Information Officer Air Force Specialty Codes, After 1996 Merger (Golembiewski, 2010)

The combining of these career fields in 1996 was labeled a merger, but to many people it looked as if the communications community had merely "swallowed up" the other two specialties (Golembiewski, 2010). This general perception discounted the wide variety of differences between the specialties and underestimated the effects of the merger on the newly established Communications and Information Officer.

The Communications and Information Officer evolved from a technical specialty that ranged from visual signaling techniques to electronic devices such as the telephone, radio, radar, and finally the computer. The Visual Information Officer emerged from audio-visual specialties, particularly photography, but also had roots in motion picture development, television production, and cartography. Furthermore, the Information Management Officer was responsible for several unrelated duties as well. Officers in this career field were responsible for areas involving administrative support, executive support, records management, and adjutant duties (Golembiewski, 2010).

The breadth of these duties was a tremendous undertaking for any one career field. The Communications and Computer career field, which was previously a highly

technical field, had assumed many responsibilities that were not technical in any way as it morphed into the Communications and Information career field. In addition to the standard technical communications and computer duties, Communications and Information Officers now found that they were in charge of responding to Freedom of Information Act requests, producing installation decals, creating signage for official functions, photographing events, postal operations, and acting as executive officers and administrative assistants to Air Force leaders across any number of functional areas (Golembiewski, 2010).

After the 1996 merger, these Communications and Information Officers remained responsible for a wide range of duties involved with supporting joint and service communications and information requirements as well as implementing and conducting communications and information unit operations (Golembiewski, 2010). In addition to the duties previously mentioned, these officers found that they were also responsible for conducting defensive information operations, managing communications related plans, acquisitions, architectures, information resources, postal operations, communications and information engineering efforts (Powers, 33SX - Communications & Information).

The 33SX Airmen conducted deployed communications operations and provided force employment planning, execution, and combat assessment support. In years past, these officers were responsible for providing all Air Force Visual Information support needs and performing operations and maintenance of visual information activities. Additionally, this pool of officers was called upon to provide executive officer support to all units base wide (Powers, 33SX - Communications & Information). With the exception of some minor changes within the career field to eliminate the B- and C- shred

designations, the identity of the Communications and Information career field remained relatively stable until the April 2010 transition.

5.2 Training and Career Field Badge

> *The defined objective for all company grade officers within this career field was to learn how to place technology, people, and money against customer requirements to satisfy customer needs. Additionally, these officers were asked to perform functions associated with operations, maintenance, administration of visual information functions, and executive officer duty in support of a variety of Air Force missions* (Air Force Personnel Center, 1999).

Training was essential for the Communications and Information Officer to accomplish these established mission support goals for the career field. There were three levels of AFSC-specific professional development that spanned the officers' career: Basic Communications Officer Training (BCOT), Advanced Communications Officer Training (ACOT), and Scope Eagle (Figure 12).

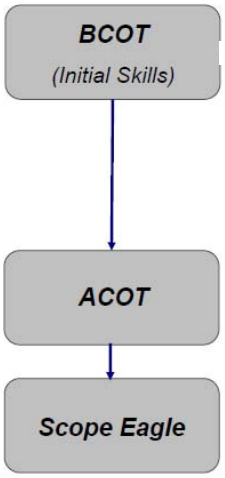

Figure 12 - Communications and Information Career Field Training (Dickinson I. R., Strategic Partnering in the New Frontier, 2010)

BCOT was the first training course for all officers entering the Communications and Information field. ACOT followed and was typically attended at the mid-level of their career between the 8 and 12 year points. The final formal training course for officers in the Communications and Information field was Scope Eagle which was generally attended by Lieutenant Colonels and Colonels who had at least 15 years of service (Sonnenberg, 2006).

The initial training for officers in this field was the Basic Communications and Information Officer Training course (BCOT). The course covered five subject areas that were taught to prepare the Communications and Information Officer with enough knowledge to successfully perform the required basic duties of a 33S Communications and Information Officer (Figure 13). Given the limited number of training days, none of the topics could be covered in much depth, which highlights the generalist nature of the 33SX support officer.

Basic Communications Officer Training (BCOT)

Block #	Block Title	Training Days
1	**Fundamentals**	5
2	**Air Force Network Management**	6
3	**Air Force Cyber and Information Operations**	2
4	**Communications Planning And Management**	6
5	**Expeditionary Communications**	7
	TRAINING DAYS	26

Figure 13 - Basic Communications Officer Training Course Subject Areas (Dickinson I. R., Keesler Cyberspace Education and Training Update, n.d., p. 3)

Award and retention of the Communications and Information AFSC required knowledge of network systems operations, information resources management; communications; command and control; postal operations; visual information, and executive management functions (Department of the Air Force, 2004). The intent of the BCOT course was to provide a brief introduction to each of these areas and the officer was expected to develop these technical skills and become proficient during the years as a company grade officer as previously discussed.

ACOT was the mid-level professional development course for the Communications and Information career field. The course provided knowledge and skills necessary to perform duties at the field grade level. It presented current and emerging communications and information programs, initiatives and technologies impacting the Department of Defense total force concept for the Communications and Information warrior in a fixed and deployed environment (Department of the Air Force, 2007).

Scope Eagle was the USAF capstone professional development seminar for the communications and information career field. The purpose of the course was to provide a forum for senior leaders to engage in strategic discussions of Air Force and Joint C&I issues, as well as the future of the career field (Sonnenberg, 2006).

Upon completion of the BCOT course, an officer was eligible to wear the basic Communications and Information badge. The wear of the senior- and master- level badges was based on the number of years served in the Communications and Information career field. After serving seven years in the Communications and Information specialty, an officer was permitted to wear a senior-level badge. Finally, after serving 15 years in the Communication and Information specialty, an officer was permitted to wear the

master-level badge, which would be worn for the remainder of the career. This badge was worn only by those identified as members of the Communications and Information career field and would identify the officer as being technically proficient in that field. The Communications and Information Career Field badges are shown in Figure 14.

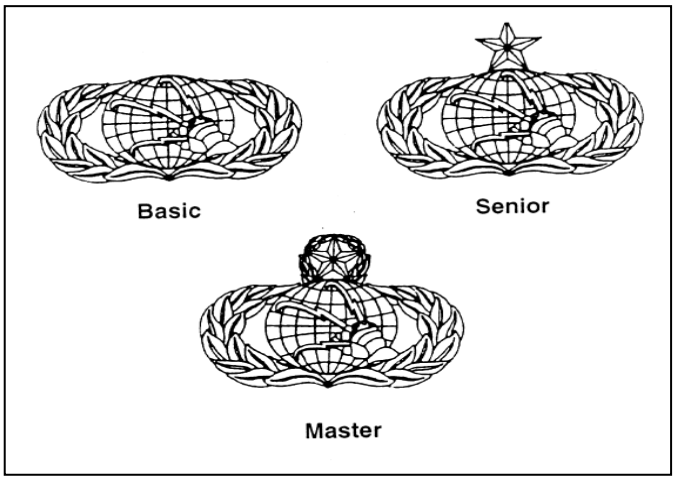

Figure 14 - Communications and Information Career Field Badges
(Department of the Air Force, 2007)

A career path pyramid was established for the Communications and Information officers to follow which provided guidelines for a balanced approach to professional development (Figure 15). This pyramid was similar to the career pyramids in other support-focused career fields. This was to be expected since the primary mission of the Communications and Information career field was support-focused at that time.

5.3 Mission Support Focus of the Communications and Information Career Field

Until the April 2010 transformation, the role of the Communications and Information career field was clearly defined as a mission support focused function. When initially assigned to the Communications and Information career field, an officer

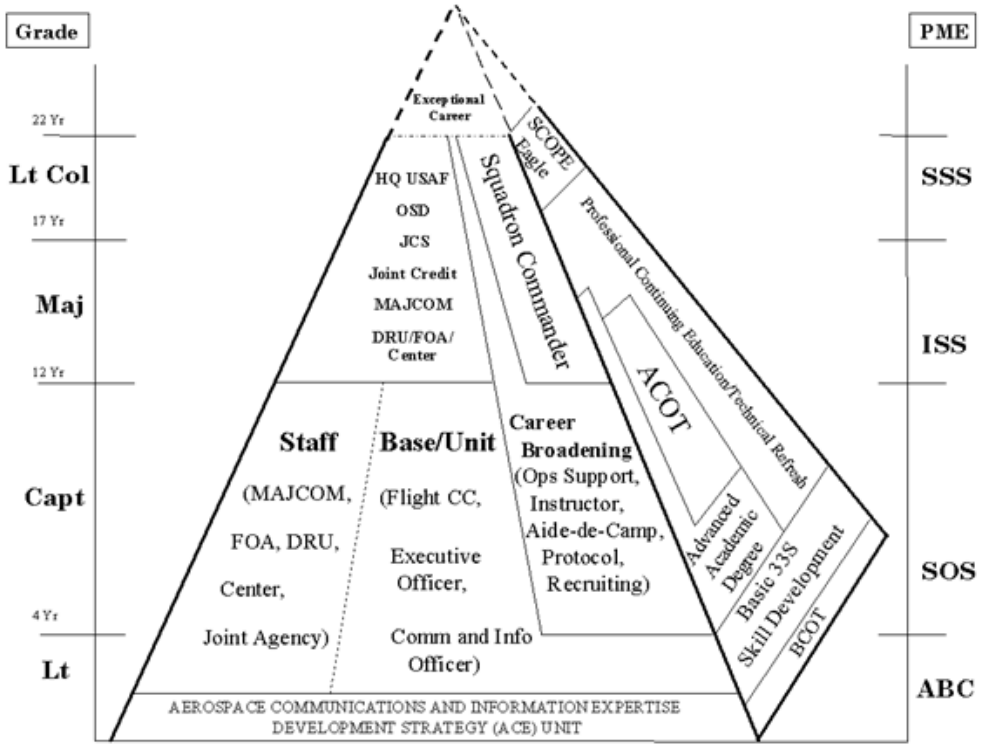

Figure 15 - Communications and Information Career Path Pyramid (Air Force Personnel Center, 1999)

was expected to spend the early years in the career field learning the basics of the Communications and Information business which was identified as customer support since more than 75% of Communications and Information company grade jobs involved providing direct customer support (Air Force Personnel Center, 1999).

The April 2010 transformation of this field to the Cyberspace Operations career field forever changed the posture and focus of the Communications and Information Officer as we knew it prior to that date…or did it?

VI. Transformation Issues and Concerns

The purpose of this chapter is to detail some of the issues surrounding the transformation of the 33S Communications and Information career field to the 17D Cyberspace Operations career field. Specifically, it provides support for the idea that there is a problem with the new operationally focused Cyberspace Operations career field continuing to provide the support functions that were held over from the Communications and Information career field of days past.

The chapter explains why this is a problem. It begins by explaining that instead of being focused in a single area, the Cyberspace Operations career field still has somewhat of a divided focus area because the members of that career field are still responsible for the legacy support duties of the Communications and Information career field. The chapter then details how the technical competency of these officers is being diluted by burdening the career field with unrelated support duties as well as provides insight into the impact that combining AFSCs to form the Cyberspace Professional Workforce may have on the workforce as a whole.

Next, the chapter explains how the CPFA and CFA appear to be working towards different goals as opposed to a common, operational goal. It then discusses how the Cyberspace Operations career field has lost its identity as was previously mentioned. The wear of the Cyberspace badge is used to illustrate how this identity loss has occurred.

Finally, the chapter provides some leadership perspectives from the A3/5 community and A6 community to further detail some of the issues surrounding the

development of the Cyberspace Operations Officer and also provides guidance on the way ahead for the Cyberspace Operations career field.

6.1 Divided Focus Areas

Cyberspace Operations Officers will find that the duties and responsibilities of their newly established career field are currently divided into two separate areas – Mission Assurance and Network Assurance. Senior leaders have determined that the A3/5 community will be responsible for Mission Assurance while the A6 community will oversee Network Assurance. 24th AF has developed a basic list of roles and responsibilities to summarize and assist in distinguishing between the duties of the two entities (Table 3).

Table 3 - Mission Assurance vs. Network Assurance
Derived from (Wachdorf, 2010, p. 7)

Mission Assurance	Network Assurance
• Operational focus (A3)	• Service provider focus (A6)
• Assure mission	• Assure the network
• Focuses on operational need	• Focuses on service availability
• Prioritize defense based on critical asset lists	• Attempts to defend entire network
• Proactive based on intelligence preparation	• Reactive based on observed enemy activity
• Fight through the attack	• Disconnect if attacked

The Department of Defense defines Mission Assurance as a summation of the activities and measures taken to ensure that required capabilities and all supporting

infrastructures are available to the Department of Defense to carry out the National Military Strategy to create the synergistic effect required for the Department of Defense to mobilize, deploy, support, and sustain military operations (Lynn III, 2010). While a formal definition of Network Assurance is not listed in Department of Defense literature to date, Network Assurance has best been described as "operating as a network service provider attempting to defend the entire network and reacting to threats by disconnecting from the network" as stated by Lt Col Steven Ranalli, 24th Air Force Operations Training Chief (McNabb, 2011). The demarcation points between the A3/5 community and the A6 community appear clear. However, there are two substantial flaws with this division.

The first flaw with this division is that the Cyberspace related responsibilities that fall in the A6 area of responsibility – network assurance – appear to be an outdated way of approaching Cyberspace operations. In fact, one of the top priorities for 24 AF has been to completely change the AF paradigm away from network assurance to mission assurance. The mission assurance paradigm works to eliminate the mindset of an officer being a "Communicator." Instead, the goal is for officers, regardless of AFSC, to view themselves as "Cyberspace Operators" with a focus centered on conducting the mission, not just providing a service (Webber, 2010). However, upon review of the established duties as they are defined, providing a service is exactly what has been identified as the primary role for the A6 community to fulfill with regards to cyberspace operations. It is unusual that one of the primary objectives of the lead organization is to eliminate the primary responsibilities of a subordinate organization if the intent is for the subordinate organization to play an active role in the development of cyberspace operations.

The second flaw with this division of duties is that there are a number of responsibilities fulfilled by Cyberspace Operations Officers that are not being addressed by either community. Specifically, the non-cyberspace related duties (i.e. postal operations, Freedom of Information Act requests, knowledge management, information resource management, etc.), are not accounted for in the duties described by either the A3/5 community of the A6 community. However, since all former Communications and Information Officers are now Cyberspace Operations Officers, these officers are currently performing these support roles which are not related to cyberspace at all. Further, as these officers relocate to new jobs, they will be replaced by other 17D officers.

6.2 Diluting the Technical Expertise

As previously discussed, the direction taken to train and develop cyberspace professionals encompasses officers from a wide range of AFSCs with an organizational structure in place to effectively manage the activities of those members of the workforce as discussed in Chapter 3. Some may argue incorporating several career fields into the Cyberspace Professional Workforce is not a problem at all. In fact, many believe this is the very intent of the development of cyberspace operations and meets the goal of the Air Force Roadmap for the Development of Cyberspace Professionals 2008-2018 for how the Air Force should grow cyberspace experts and establish the cyberspace warrior force.

It is agreed that in order to have an effective Cyberspace Professional Workforce a variety of AFSCs must be included and the decision to include career fields other than the former Communications and Information career field can be beneficial. However, the

fact that personnel from other career fields are "borrowed" to work in the Cyberspace Professional Workforce affects continuity and typically results in the loss of expertise at the conclusion of the officer's cyberspace related tour as they transition to jobs that are not cyberspace related.

This loss is similar to the loss of expertise that was already occurring when individuals completed a Network Warfare tour prior to the Cyberspace Professional Workforce being established. This loss was detailed in an article written in the Air and Space Power Journal in 2007 (Franz, et al., 2007). However, it does not appear steps have been taken to correct the issue because the potential for the same situation to occur among the Cyberspace Professional Workforce certainly exists. Furthermore, the 17D Cyberspace Operations Officers may still be assigned to the legacy support related positions held over from years past, resulting in a loss of the technical proficiency and operational focus.

6.3 CPFA/CFA Division

As discussed earlier, AFSPC has been designated as the lead command for the development of Air Force Cyberspace Operations, and the AFSPC Commander has been designated the CPFA. Likewise, the CFA duties still remain the responsibility of the SAF/CIO A6 function. While the intent of the organizational structure of the CPFA and CFA is for both entities to work together to develop cyberspace operations, the two entities do not have the same focus at this time.

The focus of the CPFA is clear. It is an operational focus that is intended to develop capability within the cyberspace domain (Cotton, 2010). The CFA duties are also

clear. As with any other functional authority, the primary duty of the CFA is to provide oversight and advisory services for the 17D functional community. However, in order to effectively perform these duties for the entire functional community, the CFA is not only responsible for the operational aspect of the functional community, but the legacy (non-cyberspace) support functions as well. As a result, the CFA cannot dedicate the full attention to the overall goal of developing cyberspace operations as was intended. Instead, the focus of the CFA must be divided between the support and operations functions of the career field while the CPFA is strictly dedicated to operations.

6.4 The Cyberspace Operations Officer – an A3/5 Perspective

The A3/5 perspective on the roles and responsibilities of the Cyberspace Operations Officer in the Cyberspace Professional Workforce is viewed no differently for Airmen in that career field than they are for any other career field under the Cyberspace Professional Workforce umbrella. The message from Brigadier General Tod D. Wolters Director of Air, Space and Cyberspace Operations, Headquarters Air Force Space Command, Peterson Air Force Base, Colorado is clear. "We warfight with leaders from both the "6" and "3" communities," stated General Wolters. "This is about warfighting. Whatever brand of 17D you are, you are expected to fight, not concern yourself with "6" versus "3" cultures" (Wolters, 2011).

From the A3/5, point of view, the movement to operationalize cyberspace is based on two primary principles. Major General Brett T. Williams, Director of Operations, Deputy Chief of Staff for Operations, Plans and Requirements, Headquarters United States Air Force, detailed these principles in a personal interview conducted in March

2011. General Williams explained that the first principle is that it is essential for the Cyberspace Operations Officers, who have previously served in the communications support-focused role and have an overall understanding of the lower levels of the Cyberspace Architecture Framework to gain an understanding of the Operations layer as it relates to accomplishing Air Force missions (Williams, B. T., 2011).

The second principle is that it is equally essential for the Operators, who have traditionally been concerned with only the operations layer of the Cyberspace Architecture Framework to have an understanding of the Information Assurance, Networking and Enclave, Telecommunications, and Sensor and Actuator layers of the Cyberspace Architecture as well (Williams, B. T., 2011). General Williams illustrates the full construct of the Cyberspace Architecture Framework using the United States Pacific Command example represented in Figure 16.

While the two principles involved with operationalizing cyberspace are clear, the efforts made thus far appear to be extremely one-sided. The A3/5 community is embracing advances in Cyberspace Operations. There is an increasing interest in the warfighting aspects in the cyberspace domain and A3/5 is making strides to lead the charge. Officers in the A3/5 community are being sent to various training programs to learn as much information as possible about the lower levels of the Cyberspace Architecture Framework. They are gaining in-depth knowledge on state-of-the art tactics used to perform Cyberspace Attack operations as well as Cyberspace Defense. This is in line with the A3/5 vision of educating the operators so that they have a functional understanding of the lower levels of the framework.

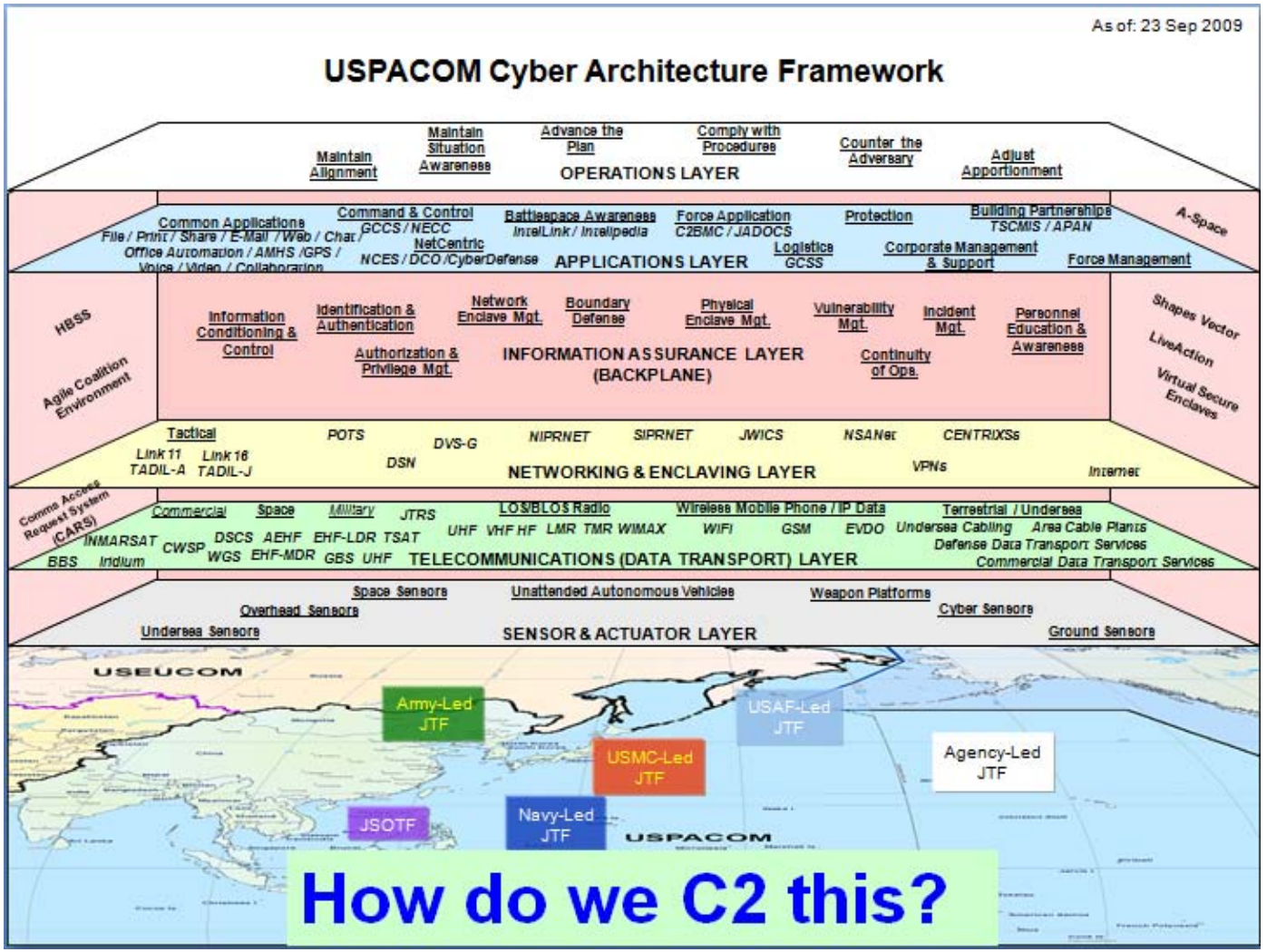

Figure 16 - United States Pacific Command Cyberspace Architecture Framework (Williams, B. T., Operationalizing Cyber, 2009)

Many steps have been taken to ensure those in the operations related career fields are indoctrinated with the underlying levels of cyberspace warfare principles. For example, some of these officers in operations related career fields (i.e. pilot, space, air battle managers, etc), are sent to the Air Force Institute of Technology where they are given an intense level of technical education at the application level of the Cyberspace Architecture Framework and below. These officers culminate their intensive study by earning a Cyber Warfare Masters degree.

Cyberspace Operations Officers, however, do not appear to be obtaining the benefit intended in the original plan for developing Cyberspace Professionals because training the Cyberspace Operations Officer to think operationally does not appear to have as much emphasis as training the officers in operations related fields to think at the lower levels of the architecture. To date, there have been minimal efforts to effectively train Cyberspace Operations Officers in the operational level of cyberspace warfare principles. The Cyber 200 and Cyber 300 professional development courses are a start, but courses lasting only 15 and 10 training days respectively are hardly enough for the Cyberspace Operations Officers to even scratch the surface of approaching cyberspace operations in an operational manner.

Cyberspace Officers cannot take a passive approach and wait for developments to evolve which will incorporate them into the fast-moving world of using cyberspace capabilities in an operational fashion to accomplish Air Force missions. Instead, they must take an active approach. Cyberspace Operations Officers have a keen understanding of how command and control should be conducted with regard to the lower layers of the Cyberspace Architecture Framework. The missing element is that these officers must

work to expand that knowledge level into the operational layer and become operationally reliant (Williams, B. T., 2011).

6.5 The Cyberspace Operations Officer Way Ahead – an A6 Perspective

The roles and responsibilities of the Cyberspace Operations Officer career field of today must undergo a significant change from the roles and responsibilities previously held by the former Communications and Information career field of years past. "The duties of the "6" as they are currently written are dead. In other words, we've outgrown the traditional role of the Communications Officer," states Brigadier General Gregory L. Brundidge, Director of Command, Control, Communications and Warfighting Integration, Headquarters United States European Command, Stuttgart-Vaihingen, Germany. According to General Brundidge, in order for the Cyberspace Operations Officer to provide value to the Cyberspace Professional Workforce, a complete mindset change must occur to eliminate the stovepipe mentality of communications as a support-focused role. "We must redefine our role and get rid of the standard "6" paradigms," states General Brundidge (Brundidge, 2010). Many of those paradigms are ingrained in our senior leaders because this mentality has prevailed throughout the majority of their careers. The Cyberspace Operations Officers that are being trained in today's Cyberspace Professional Workforce must strive to provide insight to these senior leaders to aid in tearing down the communications stovepipes and building a more comprehensive cyberspace force.

Major General Ronnie D. Hawkins, Jr., Vice Director, Defense Information Systems Agency, Arlington, Virginia, echoes the views expressed by General Brundidge.

General Hawkins' opinion is that a restructuring of the career field as we know it must occur. It is inevitable and it must occur quickly or communications officers, now known as Cyberspace Operations Officers, are going to be left behind. "Too many communications officers of old are looking in the rear view. Communications jobs of the past are just that – in the rear view. Instead, we need to look in the windshield" (Hawkins, 2011).

The A6 community fully recognizes that in order to become productive members of the Cyberspace Professional Workforce, Cyberspace Operations Officers must continue to maintain an operational focus as has been described for all Cyberspace Professionals in The Air Force Roadmap for the Development of Cyberspace Professionals 2008-2018. The only way to achieve a fully operational focus is to eliminate the focus on the legacy support duties inherited from the former Communications and Information career field.

VII. Recommendations

> *Cyberspace Officers need to become Cyberspace Officers. Since the "3" community is leading Cyberspace Professional Workforce development, many of those Cyberspace Operations Officers who have spent their career growing in the traditional Comm field are fighting to hold on to many of the traditional Comm duties. We're not fighting that way any longer. We may need to take the posture that elements that are not considered components of Cyberspace operations are no longer our responsibility. The idea that those duties should remain with the Cyberspace (Operations) Officer career field needs to die…and it needs to die now!* (Hawkins, 2011)

Cyberspace Operations Officers must fully embrace the transition to an operational, cyber mindset. Many of the existing duties performed by Cyberspace Operations Officers are not cyberspace related and do not have a direct impact in the progression of Cyberspace Professional Workforce development. The development of the Cyberspace Operations community can no longer be based on the outdated mentality associated with the mixed bag of responsibilities formerly held by the Communications and Information career field. As a result, these functions must be removed from the Cyberspace Operations career field.

This chapter provides recommendations on moving the support-related legacy functions that were performed by the former Communications and Information career field out of the Cyberspace Operations career field. It provides information on why the removal of these duties will help improve the overall health of not only the Cyberspace Operations career field, but of the Cyberspace Professional Workforce as a whole. The chapter details how the placement of these support functions should be aligned with a support organization and provides a brief discussion on why moving those responsibilities to the Force Support career field may be a logical progression.

The chapter continues by providing an overview of how the focus of the functional oversight will change regarding Cyberspace operations so that both the governing entities will be better postured to work toward the common goal of developing operations in Cyberspace. The chapter concludes with providing an alternative for realigning the support related duties, as well as some recommendations for future research.

7.1 Remove Support Functions from the 17D Career Field

The decision to change the AFSCs of the former Communications and Information Officers from the 33SX AFSC identifier to the 17DX AFSC identifier was a deliberate one. By definition, AFSCs designated with a 1-series identifier are Operations AFSCs while those with the 3-series identifier are Support AFSCs (Headquarters Air Force Personnel Center, 2010). A complete list of AFSCs that comprise these two career areas is shown in Table 4.

The Operations career area (1XXX series) encompasses utilization fields that directly employ weapons and supporting systems to accomplish the primary operational mission of the Air Force (Headquarters Air Force Personnel Center, 2010). The Support career area (3XXX series) encompasses program formulation, policy planning, coordination, inspection, command and direction, and supervision and technical responsibilities pertaining to the support career fields listed in Table 4 (Headquarters Air Force Personnel Center, 2010).

Table 4 - Operations and Support AFSCs
(Headquarters Air Force Personnel Center, 2010)

Operations Career Area AFSCs (1XXX series)	Support Career Area AFSCs (3XXX series)
11XX – Pilot	31XX – Security Forces
12XX – Navigator	32XX – Civil Engineering
13XX – Space, Missile, and C2	35XX – Public Affairs
14XX – Intelligence	38XX – Force Support
15XX – Weather	
16XX – Operations Support	
17XX – Cyber Operations	
18XX – Remotely Piloted Aircraft Pilot	

As previously discussed, the Cyberspace Operations Officer career field carries the 17DX AFSC which by definition should be operations-focused. However, the career field still holds the responsibility of fulfilling legacy support-focused duties held over from the 33SX support designation. The career field cannot continue to focus on both support-related and operations-related duties.

Conducting operations in cyberspace requires a high level of expertise. In order to obtain the necessary level of expertise in this domain, the Cyberspace Operations Officers must be focused on operations. During the 2010 Scope Warrior Spring Update, Lieutenant General Bill Lord, SAF/CIO stated "Lots of activity across the Cyber Force – (we) will continue until it's right – we're prepared to adapt and adjust as required. This isn't C&I (Communications and Information) training on Steroids – this is a COMPLETELY new effort!" (Lord W. T., Scope Warrior Spring Update, 2010)

One of the adjustments that must be made is that support-focused duties that are not related to cyberspace should no longer be performed by the operations-focused Cyberspace Operations career field because it is counter-productive to the goal, negating

the intent of the initiative to move these officers to a career field focused on operations. Additionally, education and training of the Cyberspace Operations Officers have been totally revamped to focus on the operational aspect of cyberspace. For example, generalized communications courses are no longer taught to officers entering the Cyberspace Operations profession. Instead, courses offered in UCT are operationally-focused cyberspace courses that are very specific in nature (Figure 17). As a result, these Cyberspace Operations Officers are in no better position to perform the non-cyberspace, support-focused duties than Pilots, Navigators, or any of the other operations related career fields.

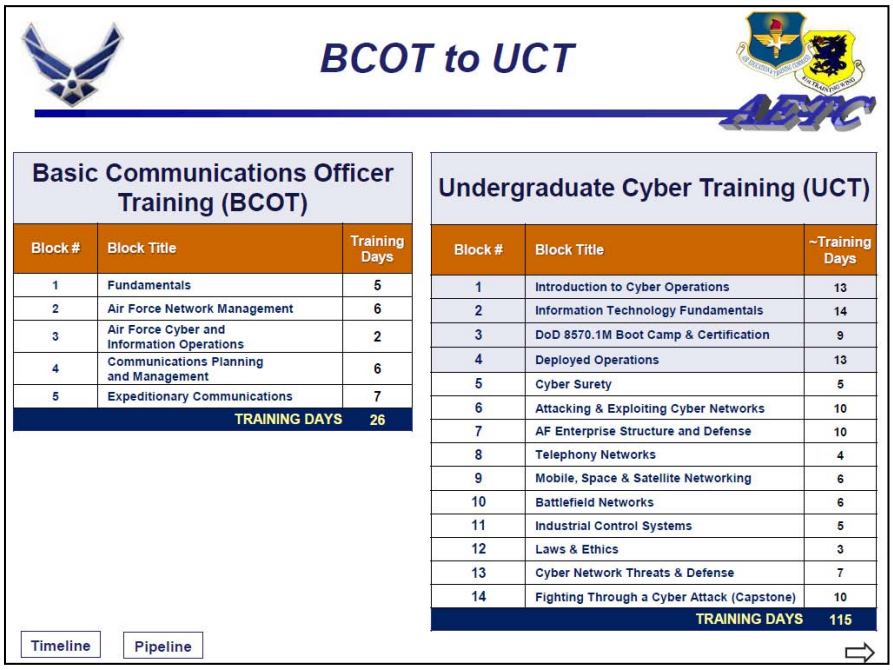

Figure 17 - BCOT/UTC Course Comparison
(Dickinson I. R., Keesler Cyberspace Education and Training Update, n.d.)

The primary objectives of the other operations related career fields are not diluted with a requirement to perform unrelated support duties. Therefore, the focus of the

Cyberspace Operations career field must not be diluted in this manner either. Instead, these support related, non-cyberspace duties should be moved to a support career field so that the Cyberspace Operations Officer can remain focused on the operational related duties of the Cyberspace Professional Workforce. The proposed structure to accomplish this separation is illustrated in Figure 18.

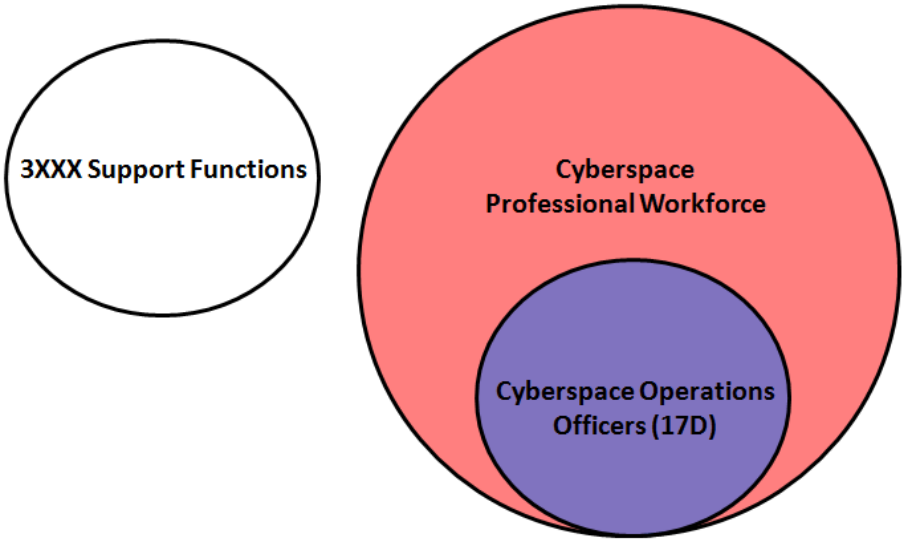

Figure 18 - Proposed Alignment of Cyberspace Operations Officers

The removal of the support functions from this career field is vital for the continuing growth and development of the Cyberspace Operations Officers. However, if the non-cyberspace, support-focused duties are not being performed by the Cyberspace Operations community, how will their functions be accomplished?

7.2 Placing Support Functions with the Force Support Career Field

A template for extracting functions from what is now the Cyberspace Operations career field and aligning them with another career field has already been written. In 2008, the Air Force re-structured what was formerly known as Visual Information. Prior

to that year, Visual Information was a Communications Squadron function that was overseen by the Communications and Information career field. The primary purpose of these photographers and videographers within the Visual Information career field was to record and produce media for documentation purposes (Gomez, 2008). Other than the use of computers and other electronic media to perform these duties, the Visual Information function did not share any commonalities with the remainder of the Communications and Information career field, even though it fell under this umbrella.

As a result of the re-structuring, the name of this function was changed from Visual Information to Multimedia. The new mission of the organization was to strategically communicate the base's mission and represent its mission through images, video, and words. The newly named organization and allocated resources *(e.g. personnel)* were moved under the Public Affairs umbrella to be overseen by the Public Affairs Career Field (Gomez, 2008). Relieving the Communications and Information career field of this unrelated function allowed officers to focus more on the core Communications and Information related duties.

In a similar manner, the non-cyberspace, support-focused duties must now be examined to determine their relevance to Cyberspace Operations, and any misplaced duties should be shifted to more appropriate organizations. For example, duties related to postal operations are currently being performed by Cyberspace Operations Officers. However, those duties are not related to cyberspace in any way. By examining the list of support AFSCs previously shown in Table 4, it appears the Force Support Career field may be a more appropriate fit for the postal operations function, as well as the other legacy support-focused functions still tasked to the Cyberspace Operations career field.

The Force Support career field (38FX) was established in 2006 when Air Force officials began merging the Manpower, Personnel, and Services career fields to streamline programs responsible for "all things people," from taking care of families, to working assignments and everything in between (Air Force Manpower Agency, 2009). The Force Support career field is responsible for all support related functions associated with administering and conducting Total Force support operations (Headquarters Air Force Personnel Center, 2010). The legacy support-focused functions that were previously performed by the Communications and Information career field fall within this description of duties. Given the Force Support career field goal, extracting the legacy support-focused functions within the Cyberspace Operations career field and placing these duties and corresponding personnel within the Force Support career field appears to be a logical solution.

The Force Support career field is already focused on support operations, and that focus will not change with the addition of the non-operational duties which are currently being performed by Cyberspace Operations Officers. The move will properly align these support functions with a support career field. Additionally, by making this change, Cyberspace Operations Officers will then have the ability to clearly focus on operations related training in the rapidly changing world of cyberspace in order to establish expertise in this area similar to what was accomplished with the move of Visual Information to the Public Affairs career field in 2008. Clearly establishing the operational focus and strengthening the Cyberspace Operations career field will also result in an overall strengthening of the Cyberspace Professional Workforce as a whole.

7.3 Functional Oversight

Once the duties are realigned, the functional oversight must also be established. After the support-focused functions are transferred to the Force Support career field, functional oversight would remain the responsibility of the Manpower, Personnel, and Services – A1 community as it is with all of the other support functions. The remaining Cyberspace Operations functions, which would now be strictly focused on operations in and through cyberspace as intended, would allow the Cyberspace Professional Workforce concept to better align with the structure of the Space Professional workforce.

As previously mentioned, the Space Professional Functional Authority is responsible for providing strategic-level guidance to the functional communities that contribute to Air Force space capabilities and the various Functional Authorities represented in the Cyberspace Professional Workforce provide oversight and functional advisory services related to their specific communities, such as intelligence (14N), space operations (13S) and developmental engineering (62E) (Department of Defense, 2008). With regard to the Space workforce, the SPFA and SFA work together because they are both working towards a common goal – the development of operations in space. After the removal of the support-related functions from the Cyberspace Operations career field, a similar relationship will exist regarding the Cyberspace Workforce.

The CPFA and CFA will continue to perform the duties as stated above for the respective positions in the space workforce. However, the CFA will no longer be in the awkward position of splitting its focus between support-related elements while the CPFA focuses solely on operations. Removal of the support-focused duties will allow the CFA

to also focus solely on the operations perspective of cyberspace. As a result, both entities will be working towards the common goal of developing operations in cyberspace.

7.4 Alternative Placement of the Support Functions

Clearly, moving legacy Communications and Information functions to the Force Support career field would have some impact, which should be researched in more detail. However, if the resources *(e.g., people and billets)* currently performing these communications and information tasks also move, the impact on Force Support is most likely limited to having more functions to oversee. Support Officers are generalists by design, and the functions to be moved are similar in scope to what is already within the Force Support area of responsibility. However, if an insurmountable obstacle is discovered that would prevent these legacy communications and information duties from being moved to Force Support career field, those duties still cannot remain where they are.

If the Force Support career field is found not to be an option, the other support career fields (Security Forces, Civil Engineering and Public Affairs) should be examined. A brief examination of the duties of these three remaining career fields clearly confirms that although these are support career fields, moving the support functions performed by the Cyberspace Operations Officers into one of these three fields would not be feasible. Other than the fact that these three are support fields by definition, the support functions being performed by the Cyberspace Operations Officers are just as unrelated to any one of these three fields as they are to the Cyberspace Operations career field.

Another option would be to create a unique, support-focused career field. One approach would be to re-establish either the 37XX or 33SX career field to assume responsibility for the non-cyberspace related duties being performed by the Cyberspace Operations career field. Creating a new career field with limited resources and breadth would probably not be viable. Any career field needs to be big enough to sustain itself and provide a growth or development pyramid similar to Figure 9.

Furthermore, a new career field is created, the title should introduce no ambiguity as to how it relates to the Cyberspace Professional Workforce. The focus of the newly created support career field should focus primarily on the information management and not the cyberspace domain.

7.5 Future Research

Future research will need to be conducted to determine a comprehensive list of the legacy non-cyberspace related duties being performed by the 17D Cyberspace Operations Officer career field. Identifying exactly which jobs are not cyberspaces related will be the first step in determining where these support duties should be placed.

Next, research will need to be conducted to study how the Force Support career field would be impacted if the career field absorbs the legacy support related functions of the Cyberspace Operations career field as detailed in this document. If moving the duties to the Force Support squadron does not become a feasible option, other options will need to be studied to determine where these duties will lie.

Another recommended area for future research on the placement of these duties would be to study the feasibility of re-establishing the 37XX or 33SX career field. Other

options that could be studied for feasibility are to contract the duties out or the extreme case where the military would simply cease to perform the non-cyberspace related duties.

Another important area for future research is to examine the future of the A6 organization. If the support related duties are actually transferred to the Force Support career field which falls under the A1 umbrella as previously discussed and the A3 community continues to be the lead organization for Cyberspace Professional development, the duties of the A6 community become unclear and a study should be conducted to redefine those duties.

VIII. Summary

The development of skilled members of the Cyberspace Professionals Workforce requires a dedicated focus on cyberspace from an operational perspective. This research has highlighted some key issues with how legacy duties that were held over from the Communications and Information Officer career field are complicating the development of an operations focus in the new Cyberspace Operations Officer AFSC.

It is strongly recommended that the legacy support related duties be fully identified. Once theses non-cyberspace (support) functions have been identified, research is required to determine the best way to transition them to a support AFSC, such as Force Support. Another option would be to re-establish the 33SX or 37XX career field. Regardless of where these legacy duties end up, this re-alignment will strengthen the Cyberspace Operations Officers field by allowing the 17D officers to focus on cyberspace operations without the distractions of the legacy support functions.

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14. ABSTRACT

The Cyberspace Operations Officer (17D) career field has lost its identity. The purpose of this research was to examine how the Cyberspace Operations career field can overcome the support focus so that emphasis can be placed squarely on operations in order for individuals in this career field to become productive members of the Cyberspace Professional Workforce.

The problem stems from the fact that the entire support-focused 33S Communications and Information Officer career field was transitioned to the operations-focused 17D Cyberspace Operations Officer career field. Although the increased operational focus is laudable, the legacy support duties from the Communications and Information field still remain. As a result, 17D Cyberspace Operations Officers are still responsible for performing these legacy duties even though they are not cyberspace related. In other words, the new operational career field is still responsible for performing a support mission. The study makes a recommendation to move these duties to the Force Support career field to appropriately align them with a support career field which will allow the Cyberspace Operations officers to focus on operations as was intended in the Air Force Roadmap for the Development of Cyberspace Professionals 2008-2018.

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