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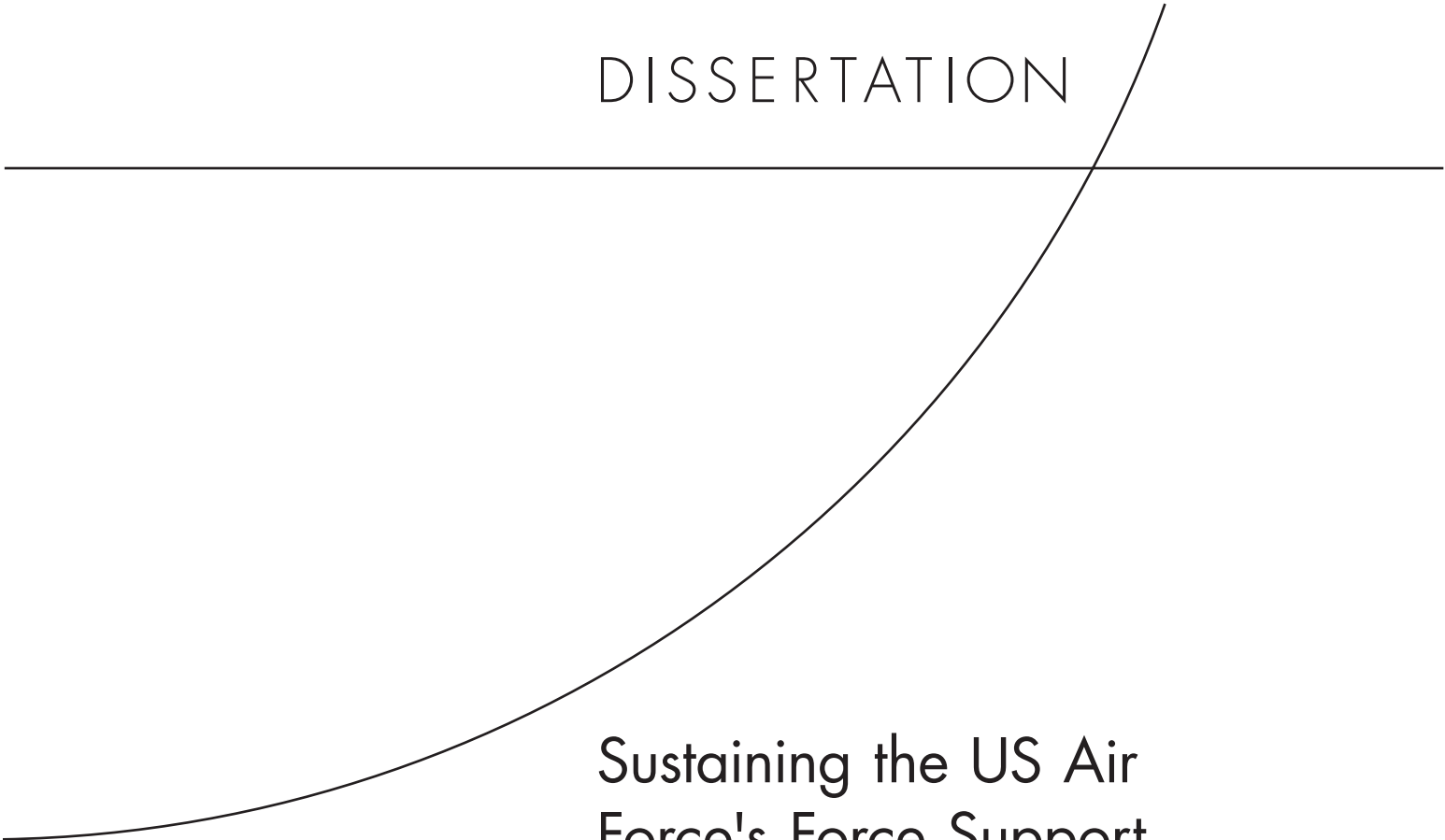
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DISSERTATION



Sustaining the US Air
Force's Force Support
Career Field through
Officer Workforce
Planning

Kevin O'Neill

This document was submitted as a dissertation in July 2012 in partial fulfillment of the requirements of the doctoral degree in public policy analysis at the Pardee RAND Graduate School. The faculty committee that supervised and approved the dissertation consisted of Nelson Lim (Chair), Al Robbert, and Craig Moore.



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ABSTRACT

This dissertation recommends changes that can be made to the structure and management of the Air Force's Force Support officer career field to better align development of functional competencies with positional demand for those competencies. Data on Force Support relevant positions were coded on the competencies they require, and a RAND simulation tool provided the means to model the flow of personnel through these officer positions and the acquisition of competencies via on the job learning. A healthy and effective Force Support officer population plays an important role in delivering the overall Air Force mission, and this population of officers will be more effective when their accumulated competencies meet the demand for such competencies generated by Force Support billets. In this sense, this research is of immediate interest to Air Force and Force Support community leadership.

While this dissertation focuses on improving the development of a specific population of personnel within the United States Air Force, the relevance of employed thought, methods, and analysis extends beyond United States Air Force career field management to any large organization. Determination and management of organizational human capital requirements and capacity to meet such requirements are necessary tasks to better assure organizational effectiveness. The findings should thus be of interest to personnel and policymakers concerned with the development and management of organizational human resources.

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Disclaimer: The views expressed in this article are those of the author and do not reflect the official policy or position of the United States Air Force, Department of Defense, or the U.S. Government.

ABBREVIATIONS

Symbol	Definition
36P	Personnel legacy career field AFSC
37F	Manpower & Personnel legacy career field AFSC
38F	Force Support career field AFSC
38M	Manpower legacy career field AFSC
AF/A1	Headquarters Air Force, Manpower & Personnel
AF/A1PF	Air Force Directorate of Force Management Policy, Force Management Division
AF/A1XX	Headquarters Air Force, Manpower & Personnel Strategic Plans Division
AF/A4	Headquarters Air Force, Logistics
AF/A7	Headquarters Air Force, Installation and Mission Support
AFPC	Air Force Personnel Center
AFSC	Air Force Specialty Code
CGO	company-grade officer
COL	continuum of learning
CST	customer service transformation
CYOS	commissioned years of service
DIMHRS	Defense Integrated Military Human Resource System
DOPMA	Defense Officer Personnel Management Act
FGO	field-grade officer
FOA	field operating agency
FSS	Force Support squadron
FY	fiscal year
HAF	headquarters air force
IDEAS	Interactive Demographic Analysis System
IST	initial skills training
MAJCOM	Major Command
MCM	Military Career Model

MSS	Mission Support squadron
NAF	numbered air force
PAD	program action directive
PSDT	Personnel Services Delivery Transformation
SAF/MR	Assistant Secretary of the Air Force, Manpower & Reserve Affairs
UMD	unit manpower document
USAF	United States Air Force
YOS	years of service

1. INTRODUCTION

1.1 RESEARCH OBJECTIVE

The objective of this research is to help ensure the effective delivery of Force Support capability to the United States Air Force (USAF) by determining what workforce management policies will sustain the development of sufficient functional and organizational competencies in Force Support officers. Official USAF doctrine highlights the critical importance of developing an appropriately qualified supply of human capital to meet USAF operational needs through a process termed force development. The USAF defines force development as "a series of experiences and challenges, combined with education and training opportunities that are directed at producing Airmen who possess the requisite skills, knowledge, experience, and motivation to lead and execute the full spectrum of Air Force missions."¹ While proper human capital development is important for any organization, the closed, hierarchical nature of the USAF's personnel system makes internal human capital development policy all the more critical. Insufficiently developed personnel or shortages of appropriately qualified personnel for jobs will thus inhibit organizational performance. As the Air Force's Force Support officer career field provides important capabilities for the USAF mission, inadequately developed Force Support officers threaten the overall ability of the USAF to provide air, space, and cyberspace power in support of national security.² This dissertation specifically explores workforce management policies the Force Support officer career field can pursue to secure qualified Force Support human capital.

¹ Air Force Doctrine Document 1-1, "Leadership and Force Development," 2006, p. 14.

² The mission of the United States Air Force is to fly, fight, and win...in air, space, and cyberspace.

1.2 BACKGROUND: HISTORICAL SETTING OF THE FORCE SUPPORT CAREER FIELD

The USAF's Force Support officer career field, characterized by the 38F Air Force Specialty Code (AFSC), currently provides capabilities for the Air Force mission in the core functional areas of manpower, personnel, and services (MP&S).³ Leading organization design and development, workforce planning, force management, performance management, program management, force readiness, and Airman and family services are more specific examples of responsibilities related to the MP&S core functional areas. The USAF expects 38F officers, via educational training and experiential learning, to develop an appropriate level of proficiency in these core functional areas. While the Force Support officer career field currently leads the USAF's human resource management enterprise, this career field configuration comes as a result of several transformative drivers which, over time, led to changes in the structure and relationship of the previously separate manpower, personnel, and services officer career fields.⁴

At the beginning of the 21st century, several Department of Defense (DOD) and USAF transformation efforts led to necessary changes in Air Force career field structure. The Assistant Secretary of the Air Force for Manpower and Reserve Affairs (SAF/MR) and then Air Force Deputy Chief of Staff, Manpower and Personnel, conducted two projects which transformed the manpower and personnel communities: a core competency review of Air Force manpower and personnel functions and a customer service transformation (CST).

At the time, various study findings illustrated that a large number of personnel specialist activities were largely transactional in

³ Core functional areas, which can also be termed core specialties, provide organizational members with a foundation for their actions and behaviors in working towards completing the organization's mission and vision. A common organizational understanding of such core specialties also results in a common means of tracking and communicating the acquired skillsets of members within an organization.

⁴ Appendix A provides a brief introduction to the basic components of the USAF military personnel and human capital management approaches for readers unfamiliar with these systems.

nature, did not support Air Force core competencies, and were performed inconsistently and inefficiently through multiple channels. These same findings prompted the customer service transformation, intended to overhaul process and organizational guidelines, while further pressing towards transformation of the Air Force manpower and personnel communities. In the summer of 2004, a personnel services delivery transformation (PSDT) initiative consolidated the CST efforts and manpower and personnel transformation efforts into one program.⁵

In conjunction with the ongoing development of the Defense Integrated Military Human Resources System (DIMHRS), the PSDT effort sought to efficiently transform the way in which Air Force personnel and manpower services were delivered by effectively deploying new technology and transforming relevant business processes and organizations to meet the demand for anytime, anywhere personnel services. The Air Force leveraged technology to give Airmen the capability to conduct routine personnel transactions through Web-based modules and centrally located, streamlined service call centers. Instead of physically visiting a military personnel flight, Airmen could process their personnel needs online. As a result, physical manning requirements for base level military personnel flights decreased and redundant workloads consolidated in the virtual environment.^{6,7}

The merger of the previously separate 36P, Personnel, and 38M, Manpower, officer career fields occurred in conjunction with these Air Force PSDT efforts. At the same time, Headquarters Air Force, Manpower and Personnel (AF/A1) leadership anticipated future problems with career field sustainability if these career fields were kept separate.

On October 31, 2005, these two previously separate career fields were merged to form the 37F Air Force Specialty Code, "Manpower-Personnel", officer career field, which simultaneously broadened and

⁵ HQ USAF, "Program Action Directive 07-11: A1 Transformation," 15 February 2008, p.1.

⁶ Mattox, 2006.

⁷ Simmons, 2006.

sustained these officer capabilities by creating a single, more efficient management point for manpower and personnel issues. The March 2005 issue of *PSD Flight*, a newsletter providing then mission support squadron (MSS) commanders updates on Air Force PSDT issues, stressed that the 37F career field "merger sets the tone for the entire transformation of our business".⁸

As customer service functions consolidated in a centralized, web-based environment and officer career fields merged, MSSs absorbed the previously separate manpower functions from wing staff agencies to create a single entity for manpower and personnel functional activities.⁹ To further accommodate this change, AF/A1 leadership directed the establishment of a new initial skills training (IST) curriculum to teach new officer accessions both personnel and manpower competencies and also instructed assignment teams to look for opportunities to cross-pollinate previous manpower and personnel classified officers between these two functional competencies.¹⁰

Program Budget Directive 720 (PBD-720), the "Air Force Transformation Flight Plan" served as another driver of change towards the current 38F career field configuration. Released on December 28, 2005, PBD-720 outlined the USAF's plans to reduce the total active force by approximately 40,000 personnel as means of financing aircraft recapitalization and modernization programs.¹¹ Shortly thereafter, then USAF Chief of Staff T. Michael Mosley penned a memorandum to Air Force major command (MAJCOM) commanders, further underlining the Air Force's ongoing PSDT effort and need to examine "existing organizational relationships and ensure our people have an appropriate range of skills to provide the capabilities we need now and into the future."¹² Given the planned Air Force manning cuts, General Mosley declared the Air

⁸ US Air Force. *PSD Flight*, May 2005

⁹ Greig, 2⁰⁰⁵

¹⁰ Lt Col Dan Merry Interview, 4 Nov 2010

¹¹ Air Force Audit Agency, "Air Force Personnel Reductions-Audit Report F2008-0004-FD4000," 12 May 2008

¹² Moseley, Gen T. Michael. "Services Functions in the Air Force: Memorandum for ALMAJCOM/CC", 30 Mar 2006

Force's need for more "utility infielders and fewer narrowly focused specialties."¹³ As a first step towards creating more utility infielders, General Mosley outlined a plan to merge the services officer career field with the previously merged manpower-personnel career field, resulting in a MP&S career field with lower overall manning strength numbers. In addition, General Mosley's memorandum directed a transfer of functional responsibility for services from Headquarters Air Force, Logistics and Installations (AF/A4/7) to the AF/A1 staff by April 1, 2006, a similar transfer of responsibility at the MAJCOM level no later than June 1, 2006, and for the Air Staff to construct a timeline for the merger of then separate services and mission support squadrons into a new base level unit, the Force Support Squadron (FSS).

"Headquarters United States Air Force, Program Action Directive 07-11, A1 Transformation", 15 February 2008, outlined the basic components of the PSDT implementation, AF/A1 community transformation, and MP&S functional community integration efforts. While PAD 07-11 guided all of the MP&S functions to merge into one squadron, it further directed, pursuant with Gen Moseley's memorandum, the Manpower and Personnel (37F) and Services (34M) officer career fields be merged to form a new career field, Force Support. The new Force Support officer AFSC designator, 38F, became official on October 31, 2008 as officers previously holding the 34M or 37F AFSC designators received this new classification. While this AFSC merger consolidated the officer cadre responsible for leading MP&S components, it also raised a number of issues related to the training, development, and functional competency of 38F officers.

Prior to the successive officer career field mergers in 2005 and 2008, MP&S officers primarily garnered assignments and performed duties immediately relevant to their specific career field. These officers tended to stay within their career field throughout the company-grade officer (CGO) and early field-grade officer (FGO) ranks, gaining a

¹³ Ibid

depth of knowledge, expertise, and competencies relevant to their career field's specific functional area. Generally, manpower officers held jobs focused on establishing, validating, and continually re-validating manning requirements. Personnel officers engaged in duty positions involving hiring, recruiting, retaining, and the leveraging of various other "dials and levers" to develop officers to better meet the stated mission manning requirements. Services officers developed and implemented plans, programs, and policies governing food service, lodging, fitness, mortuary, recreation, child development, and leisure functions. Correspondence with officers serving at the time in which manpower, personnel, and services operated as discretely distinct career fields indicated that developmental assignments primarily occurred within the officer's respective career field community.¹⁴ For the most part, examination of officer duty histories further validates that MP&S officers essentially developed inside their respective career fields.¹⁵

In the time MP&S operated as separate career fields with large manning numbers, this more singular development track proved a capable setup for developing appropriately qualified leaders in these functional areas, yet smaller numbers of 38F officers must now "be able to operate in any environment, perform a variety of Force Support-related jobs and understand all aspects of support operations."¹⁶ Recent newsletters from the 38F career field manager stress how important it is for Force Support Officers to gain a broad foundation of competency through early exposure to multiple functional areas within the Force Support community. Previous changes and ongoing efforts in managing 38F officers reflect upon these issues of improving 38F officer training and development.

¹⁴ Lt Col Dan Merry Email Correspondence with Lt Col Joel Elsbury (Personnel), Lt Col Jeannine Beer, Ret (Manpower), Lt Col Justin Hall (Services)

¹⁵ MP&S Officer SURF's examined using Career Field Manager access in Career Path Tool

¹⁶ Headquarters US Air Force. "AFSC 38FX Force Support Officer Career Field Education and Training Plan," 15 December 2009.

To better prepare new accessions to the 38F officer corps to meet these high expectations, a new IST course for Force Support officers opened at the 335th Training Squadron, Keesler Air Force Base, Mississippi, graduating its first class on 6 December 2008.¹⁷ As Force Support officers must ideally be prepared to serve and lead in any Force Support functional capacity, the 38F IST curriculum currently provides instruction on the basic tenets in each of the manpower, personnel, and services legacy career fields. A member of the first graduating class echoed the need for breadth in the entering 38F officer competency set, stating that "the key is that you need to know all of this information, although you may only be applying part of it."¹⁸ A more recent graduate reflected similar sentiments, stating that the 38F IST underlined the importance of having "an understanding of all 3 [MP&S components], not [being] a perfectionist of all 3 [MP&S components]."¹⁹

Efforts were also made to better prepare officers already serving in the MP&S communities upon establishment of the Force Support officer career field. With the 38F career field merger and creation of the FSS, officers previously serving in the 34M or 37F AFSC capacity received computer-based transition training. The *FSS Familiarization Course via e-Learning (FSS 175)* provided personnel with basic knowledge of the squadron structure and the key issues within each duty section through instruction on FSS evolution, leadership, command staff, readiness, overview of the squadron structure, and a discussion of current insights and challenges at the tactical level.²⁰ In addition, *FSO Bridge Training (FSS 150)* functioned as computer-based training to illustrate the key competencies within the MP&S fields that a Force Support Officer could possibly encounter. Briefly discussed in the February 2010 Force Support Officer Career Field Update, Colonel David

¹⁷ Anderson, 2008.

¹⁸ Holditch, 2008.

¹⁹ Rufus, 2010.

²⁰ Headquarters US Air Force. "AFSC 38FX Force Support Officer Career Field Education and Training Plan," 15 December 2009, 9.

Anderson, then the 38F career field manager, mentioned that *FSS 150* provided 103 training links with over 200 areas of instruction related to more specific AF/A1 competencies. Originally launched on October 31, 2009, the first phase of the bridge training focused on providing educational materials for base-level 38F officers transitioning from one MP&S core competency to another, while the second phase of computer based training modules intended to educate 38F officers on the necessary skills and new roles they will provide at the major command (MAJCOM), field operation agency (FOA), or Headquarters Air Force (HAF) level.²¹

These efforts provided initial familiarization training for new 38F officer accessions and those officers crossing over from previous 34M and 37F classifications, but the appropriate development of 38F officers remains an issue. 38F IST attendees learn that FSS commanders are currently among the most often fired squadron commanders across the Air Force. Between April 2008 and May 2009, 13 Force Support squadron commanders were removed from their command positions early--10 for lack of confidence, 3 others for behavior and conduct issues.²²

Faced with this reality, AF/A1 leaders released some broad guidance on the ideal development of 38F human capital, but ongoing communication from 38F career field leadership seemed to indicate uncertainty as to whether this newly created career field was configured in such a manner to promote the development of necessary 38F human capital. Given the broad array of 38F competencies, the then-serving 38F career field manager recommended that "ideally officers would have 1-2 years in each of the manpower, personnel, and services realms prior to pinning on Major."²³ Building breadth during the company grades serves as one clearly emphasized broad developmental goal, but, further highlighting the new ambiguity regarding 38F human capital development capabilities, configurations, and practices

²¹ Anderson, 2008.

²² Doboga, Mr. Mark and Col Dave Anderson, *Leading the Human Enterprise*, Briefing to 38F IST

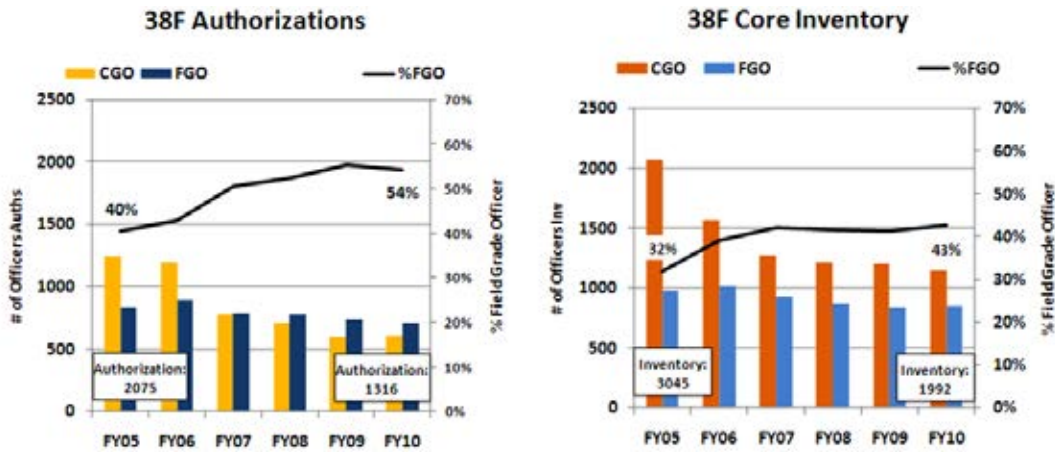
²³ Ibid, 3.

following the successive career field mergers, the new career field manager welcomed 38F officers to the "Grey Zone," where "just about everything is waiver-able," and 38F officers would "need to be deep and broad at different times in [their] career."²⁴

As the desire for more flexible use of officers drove the merger of the previously independent MP&S career fields into the current Force Support career field, the rapid changes in career field configuration over a relatively short time span have created uncertainty regard the best practices for development and management of 38F human capital. USAF leaders hold ongoing concerns about the current viability of the Force Support career field and the development of individual Force Support officers. Underlying these uncertainties regarding 38F officer development, the adjustments driven by PBD-720 and other USAF budgetary cuts created a 38F authorization structure that is not aligned with the supply of 38F officers between the company grades and the field grades. Figure 1.1 displays the annual 38F authorizations and core inventory of MP&S officers in the USAF from FY2005 to FY2010. While the FY2005 legacy MP&S career field authorizations and core inventory are not exactly equivalent within the company grades and field grades, the authorization structure is roughly sustainable as company-grade authorizations outnumber field-grade authorizations.

²⁴ Anderson, 2010, Slide 43.

Figure 1.1
38F Authorizations and 38F Core Inventory FY05-FY10



SOURCE: Figure taken from Mr. Jason Williams's "Career Field Analysis: Force Support" briefing for AFPC/DSYA.

Between FY2005 and FY2010, reflecting PBD-720 changes towards a more streamlined human enterprise and a variety of force shaping measures, overall 38F authorizations decreased by 36.6%, while 38F core inventory simultaneously decreased by 34.6%. Beyond the overall decrease in 38F authorizations and personnel, the force management measures taken between FY2005 and FY2010 created an unsustainable authorization structure. Starting in FY2007 and continuing through FY2010 the 38F FGO authorizations outnumber the 38F CGO authorizations, generally characterizing an unsustainable structure. One can see that compared to the changes in the 38F field-grade authorizations, the relative decrease of 38F company-grade authorizations over the same 5 year time span was much more pronounced, leading to the current imbalance in authorizations between the company grades and the field grades.²⁵

²⁵ Multiple 38F officers told similar anecdotal accounts regarding why company-grade authorizations were eliminated to a much greater extent. While Air Force policy makers passed down guidance on the required authorization cuts within the 38F legacy career fields, substantial discretion was left up to MAJCOM staffs regarding the specific implementation of such authorization cuts. When given the option, the various MAJCOMs chose to retain a greater proportion of their field-grade authorizations at the expense of their company-grade

Coupled with the lack of certainty about the proper approach to developing 38F officers so they are functionally competent to serve in future jobs, the current authorization structure of the 38F career field further inhibits the ability of the 38F community to ensure deliberate force development practices. The number of CGO authorizations is less than the number of FGO authorizations, but the 38F inventory, generally typifying more stable personnel flow patterns, contains more company grade than field-grade officers. Given the mismatch between the inventory and available authorizations, company-grade officers must then be placed in billets specifically authorized for field-grade officers. While the career field continues to operate with this imbalanced configuration, it would be easier to manage and fill 38F positional requirements with an authorization structure that matches the number of personnel at each grade. A career field's authorization structure functions as rough signal of requirements for competency and experience, with field-grade authorizations usually requiring more competency and experience than company-grade authorizations. When the number of field-grade billets exceeds the available supply of field-grade officers, there is not an accurate signal of where the greater positional requirements for competency and experience truly lie.

authorizations. By retaining a greater proportion of their field-grade authorizations, the MAJCOMs also retained the higher grade requirements associated with these field-grade billets, enabling the MAJCOMs to say that they needed a more experienced and qualified field-grade officer when seeking to fill the authorization. If a specific MAJCOM chose to hold onto a greater proportion of company-grade billets and eliminate greater numbers of field-grade billets, then that specific MAJCOM would have more difficulty acquiring similar numbers of more experienced and qualified field-grade officers from the USAF's centralized personnel assignment system because their requirements for field-grade officers would be less. As an extreme example, if a given MAJCOM eliminated all of their field-grade authorizations and retained all of their company-grade authorizations, only lesser experienced, less functionally qualified 38F officers would be assigned to that MAJCOM because that is all that would be needed to meet the CGO authorization requirements.

Additionally, while company-grade officers placed in these field-grade authorizations likely gain developmental experience and knowledge which prepare them for later assignments, on average, their acquired skills and knowledge via experience have likely not adequately prepared them for field-grade billet responsibilities. The placement of inadequately prepared CGOs in FGO billets likely has costly implications for the Force Support community, as previous research on productivity and military personnel experience has generally shown that more experienced personnel yield "more effective performance on a wide range of tasks, heightened accuracy, and increased productivity."²⁶ With inadequately prepared, inexperienced CGOs serving in these FGO billets, the organizational effectiveness of the 38F community may be threatened due to potential shortfalls in job performance and productivity.

1.3 RESEARCH QUESTIONS

As the Force Support community faces these issues, this analysis examines which workforce management initiatives can sustain Force Support officer expertise requirements for the USAF. The following specific research questions are addressed:

1. Is the 38F career field sustainable?
2. Can breadth be developed in 38F company-grade officers?
3. Is sufficient depth developed to meet 38F field-grade requirements?

Exploring these research questions will ultimately shed light on whether proposed Force Support competency development policies will yield a population of 38F officers with the proper experience to meet positional requirements. Current Force Support leadership has envisioned a developmental framework wherein 38F officers gain a

²⁶ Kavanagh, 2005, p. 4.

breadth of 38F functional experience during their company-grade time via 2 year assignments, and then ideally develop deeper experience in one functional area during the field grades. This human capital developmental approach makes sense in theory, but no one has actually quantified the extent to which such policies are possible and whether they ensure Force Support officers' acquired competencies meet job competency requirements.

Answering these questions will identify how Force Support policymakers can shape and manage the 38F officer career field to improve the development and utilization of Force Support officers, thus enhancing the overall capability of the USAF's human enterprise.

1.4 ANALYTICAL APPROACH

This dissertation uses a competency-based analysis approach to determine which workforce management initiatives should be utilized to improve the deliberate development of Force Support officers and better meet the USAF's human enterprise officer leadership needs. Past research on improving officer development within individual USAF career fields generally used a four step competency-based modeling approach.

1. Determine the competencies demanded of the workforce.
2. Determine the competencies the workforce has acquired.
3. Compare the demand and supply.
4. Implement solutions to mend competency gaps between demand and supply.

A visual depiction of this competency-based analysis approach applied to USAF officer career fields is depicted in Figure 1.2.

Figure 1.2
Overview of Career Field Competency Based Analysis Approach



SOURCE: This figure pulled from Dues, 2011, p. 9.

While this competency-based analysis approach identifies current gaps in officer development and utilization by comparing the qualifications that current officers supply against the qualifications that the jobs demand, this exact analytical approach was not replicated for this research. Adopting such an approach would require identifying the experience that current Force Support officers had accumulated since entering the force by examining the Air Force Personnel Center (AFPC) end-of-year historical assignment records. After determining the qualifications supplied in the current population of 38F officers, one could then make various comparisons with the positional requirements of the jobs officers were currently assigned in order to identify potential gaps in officer development and less than ideal assignment decisions.

Pursuing this process for the Force Support officer community would likely identify gaps between the qualifications that 38F officers supply and billet demand for qualifications, but these gaps would likely be due to the recent wholesale changes via successive mergers of the previously separate legacy MP&S officer career fields as opposed to inadequate development or assignment policy. As the 38F career field has only existed since late 2008, the current population of field-grade

officers, whom bear the responsibility of filling higher staff and strategic level billets demanding specific qualifications, garnered developmental assignments and experience in their respective manpower, personnel, or services legacy career field. In addition to these previous singularly developmental tracks leading to qualification gaps, 38F field-grade assignment decisions following the successive mergers were likely affected by uncertainty regarding whether officers should be primarily vectored to fill billet qualification demands respective to their legacy career field functional competencies or instead be vectored to 38F developmental assignments which would provide them exposure to functional competencies outside their previous legacy career field experience.

While this analysis did not specifically embrace steps 2 and 3 displayed in Figure 1.2, it does utilize a simulation model to determine what changes need to be made to the current Force Support officer authorization structure framework to move the 38F career field toward a sustainable structure which allows for the deliberate development of competent, qualified officers to meet billet demands. After first identifying the broad grade structure changes needed to achieve 38F career field sustainability, the simulation model is further used to explore different policies towards reallocating and managing 38F authorizations based on the functional and organizational experiences and competencies they confer within this sustainable structure. Beneficial approaches are identifiable based on the extent to which the various reallocated 38F authorization structures eliminate gaps between the competencies supplied by the simulated 38F officer population and the competencies demanded by the billets these officers fill. With this analysis approach, potential 38F officer qualification gaps and solutions to mitigating such gaps are both identified and explored via simulation.

1.5 SCOPE AND LIMITATIONS

The scope of this research effort was limited in several ways. Most apparent is that this work does not assess the developmental needs of the USAF's enlisted and civilian personnel involved in Force Support related roles. These personnel populations complement the Force Support officer population, and possible shortcomings in the training and development of these personnel could inhibit the overall capability of the USAF's human enterprise as well.

The broad functional competencies identified as being required by current 38F field-grade billets reflect the collective judgment of an assembled panel of experts.²⁷ This same panel of experts also made collective decisions on the type of experience each current 38F field-grade billet would confer to an officer inhabiting such billets. For those field-grade billets identified by the panel as requiring certain types of prerequisite functional experience, RAND military manpower and personnel policy experts later quantified these broad functional requirements in yearly terms. RAND military manpower and personnel policy experts, with the assistance of RAND Senior Air Force Fellows, also made decisions regarding the competencies conferred by the current population of 38F CGO authorizations.

In examining different approaches to reconfiguring a sustainable 38F career field, the analysis of simulation results focuses on whether enough 38F officers will garner the necessary competencies and experiences to meet billet demands. In doing so, the simulation operates under the assumption that different officers will develop the same level of functional competency and proficiency if they spend an equivalent amount of time in the same billet.²⁸ In reality, different officers may gain functional proficiency at different rates in the same billet. Even if all 38F officers developed proficiency at the same rate, the specific job properties and responsibilities associated with

²⁷ Appendix B contains tables displaying the functional competency requirements of field-grade billets.

²⁸ In this sense, an officer is considered as having acquired competency relative to a certain functional area or specialization after having accumulated a certain amount of functional experience.

a given authorization could shift over time, leading to different developmental experiences.

This specific example ties into a larger limitation of the chosen analytic approach. In determining the benefits of various policy approaches, the utilized model governing the simulated development of 38F officers uses a stable, time-invariant set of 38F billets, billet qualifications, and personnel assignment rules. Similarly, fixed parameters regarding retention and promotion govern the simulated personnel flow through the grades. In reality, the USAF personnel system is characterized by fluctuating numbers of authorizations within each AFSC and shifting perceptions regarding what experiences billets require and provide and how these billets should be managed. At the same time, real world retention and promotion rates also vary with time as factors like the pace of military operations and available economic opportunities external to the military influence personnel decisions regarding continued military service. As the average newly commissioned officer typically takes around a decade to reach the field-grade level and a little over two decades to reach O6, large changes in the Air Force personnel system and structure of 38F authorizations over time would thus lead to different outcomes than found in this research. Nevertheless, despite these limitations, the analysis still illuminates the broad trade-offs associated with various 38F career field restructuring approaches and recommends broad guidance for improving 38F officer development based on this information.

1.6 ORGANIZATION OF THIS DISSERTATION

The next chapter further explains the general methodologies that form the foundation for the approach used in this dissertation, and also provides a basic overview of the simulation tool employed in this analysis. Chapter Three explores the first research question, documenting the current unsustainable state of the 38F officer career field and showing what changes should be made to establish sustainability in the 38F authorization structure. Chapter Four explores the second research question, determining the extent to which

company-grade breadth can be developed in a reconfigured, sustainable grade structure and whether such a policy fills field-grade requirements. Chapter Five investigates the final research question, seeking to understand which approaches to reconfiguring a sustainable career field allow for officers to build functional depth to meet field-grade requirements. Chapter Six contains the conclusions and recommendations of this research.

2. METHODOLOGY

This chapter describes the underlying theory, methods, and past research related to the competency-based modeling approach this research employs as a means of enhancing Fore Support officer human capital management practices. This chapter also provides an overview of the simulation tool used to analyze the different human capital management policy options within the competency model framework of the 38F career field.

2.1 HUMAN CAPITAL THEORY

The resource-based view of the firm holds that the manner in which resources are combined and applied within firm, or organization, operations determines the ability of the organization to create a sustainable competitive advantage.²⁹ In other words, a firm that utilizes resources in a unique value-creating strategy which is both not currently being applied by their competition and unable to be easily imitated by their competition will likely derive a sustainable competitive advantage, strengthening the position of the firm within the competitive marketplace.

While the different branches of the United States military differ in nature from the competitive firm, previous research suggests that "the notions of sustained competitive advantage and the resource based view of the firm do have some application for public sector organizations."³⁰ The concept of competitive advantage seems to be an accepted concept in some sectors of the United States military community as well. *The US Army Learning Concept for 2015*, TRADOC Pam 525-8-2, states that the US Army's "competitive advantage directly relates to its capacity to learn faster and adapt more quickly than its

²⁹ Barney, 1991.

³⁰ Matthews et. al, 2005, p. 10.

adversaries."³¹ In this sense, the concept of the competitive advantage of a firm is somewhat applicable to the government and its military service branches which serve to provide a public good.

Firm resources encompass "all assets, capabilities, organizational processes, firm attributes, information, knowledge, etc. controlled by a firm that enable it to conceive of and implement strategies that improve its efficiency and effectiveness."³² Firm resources can usually be classified as either tangible assets, such as machinery applied in a production process, or intangible assets, such as a firm's methods of communicating within its organizational structure, the information and knowledge it controls, and the processes and practices it utilizes to develop its employees.³³

In order for a given resource to provide competitive advantage for the firm, this resource must be rare, valuable, without substitutes, and inimitable.³⁴ Intangible assets are generally more likely to meet these qualifications. Indeed, "employees' skills, IT systems, and organizational culture are worth far more than tangible assets."³⁵

One type of intangible asset is human capital. Human capital can be defined as an individual's knowledge, experiences, capabilities, skills, creativity, and innovativeness.³⁶ Stated in another manner, individual human capital is comprised of four factors: one's genetic make-up, education, experience, and general attitudes towards life.³⁷ In the interconnected, globalized environment of the modern knowledge based economy, human capital is typically viewed as the type of asset which enables a firm to sustain a competitive advantage.

While individuals possess many talents and abilities inherent in their unique human capital, an individual will only create value for a firm by successfully implementing that given firm's strategy. If an

³¹ US Army TRADOC Pam 525-8-2, p. 5.

³² Daft, 1983, cited in Barney, 1991, p. 101.

³³ Afiouni, 2007, p. 125.

³⁴ Barney, 1991; Collis & Montgomery, 1995, cited in Elliot, p. 48.

³⁵ Kaplan & Norton, 2005 p. 52.

³⁶ Edvinsson & Malone, 1997, cited in Afiouni, 2007, p.127.

³⁷ Hudson, 1993, cited in Afiouni, 2007. p. 127.

employee does not implement the firm's strategy, their talent is of no value to the firm.³⁸ To best assure that employees create value, the firm must identify and understand which competencies allow an employee to implement the firm's strategy. Having identified these competencies, the firm must then ensure that its human capital acquisition, development, management, and strategic planning policies provide for the appropriate mix of needed competencies today and in the future to best sustain a competitive advantage.

2.2 COMPETENCY MODELING AS A MEANS OF ENHANCING HUMAN CAPITAL MANAGEMENT

A competency is the capability of applying knowledge, skills, abilities, behaviors and specific individual characteristics to successfully function and execute work tasks in a specific role or position.³⁹ Competency modeling is a process and organization framework used to identify and describe sets of specific competencies characterizing effective performance in a job or group of jobs to further the organizational mission.⁴⁰ The primary benefit of competency modeling is that it provides organizations with readily usable information on possible approaches to enhancing human capital management practices to better achieve strategic organizational objectives.⁴¹

2.2.1 Competency Modeling Process Methodology

Developing a useful competency model basically involves identifying the competencies respective to a group of jobs and then applying this information to assess and improve various organizational policies, such as human capital management. No one competency model is best, and organizations will choose an optimal competency modeling

³⁸ Becker et al., 2001, cited in Afiouni, 2007, p. 128.

³⁹ Ennis, 2008, p. 4-5.

⁴⁰ LaRocca, p. 1.

⁴¹ Rodriguez et al., 2002, p. 319.

approach based on tradeoffs between the granularity of the model and the amount of resources need to achieve such granularity.⁴² Nevertheless, there are accepted methods and practices of completing a competency modeling process, and they are generally explored in this section.

As the development of a competency model typically entails significant investments of time and money, one should ideally first define the overall objective of such an effort by identifying the organizational need for such a model, potential units of analysis, relevant timeframe considered, and the potential applications of the model.⁴³ It is also essential to develop familiarization with overall organizational goals and objectives because linking the identification of competencies to these constructs will yield greater commitment from senior management.⁴⁴ Building this awareness of the organizational context is essential for developing a useful competency model for the organization.

After developing this organizational context, the bulk of the effort in developing the competency model is then spent upon collecting data which will be used to identify the competencies themselves. The most rigorous, ideal competency identification approach would use multiple data collection methods to sample multiple representative groups (i.e. job incumbents, supervisors, supervisee, clients/patients) across the organizational structure concerning the most critical competencies required for excellent performance in a given unit of analysis (typically a job, but can also include broader entities such as a grouping or unit of jobs, sector within an organization, specific mission, or task).⁴⁵ While using multiple data collection methods is advantageous because it can assure greater credibility of the identified competencies if the results of different data collection methods match, such an extensive effort is not always possible given

⁴² Dues., 2011, p.20; Marrelli et al., 2005, p. 537.

⁴³ Marrelli et al., 2005, p. 539.

⁴⁴ Campion et al., 2011, p. 231.

⁴⁵ Marrelli et al., 2005, p. 544.

organizational resource limitations. Some possible data collection methods include review of job relevant literature, focus groups, structured interviews, behavioral event interviews, surveys, direct observation, and analysis of employee work logs.⁴⁶ As each approach possesses specific advantages and disadvantages, employing multiple approaches can offset some of the drawbacks associated with utilizing a single approach.

After the data collection stage, the process then shifts to identifying competencies from the collected data relevant to each unit of analysis. Essentially, for each unit of analysis, this involves narrowing down the collected data into a list of one or more clearly defined competencies. The research team aggregates collected data which describes similar knowledge, skills, abilities, behaviors, and individual characteristics for a given unit of analysis into a broader competency category. For further granularity, the research team can characterize each competency by its general observable behaviors and also qualify different proficiency levels of each competency with specific behavioral examples. In compiling the collected data into a competency model, the goal should not be to create an absolutely exhaustive list of every competency that could possibly enhance performance in a given job, but instead to simply capture those critical competencies deemed absolutely essential for everyday job performance.

Following this clustering of similar knowledge, skills, and abilities into a competency model, effort should then be made to validate the results. Submitting the list of competencies to subject-matter experts for review, or, if time and resources allow, conducting a criterion-related validity study are just some possible options for validating the chosen competency model.⁴⁷

The primary organizational value of competency models can be realized when utilized to sustain an integrated competency-based human

⁴⁶ Marrelli et al., 2005, p. 545-552.

⁴⁷ Marrelli et al., 2005, p. 555; Horey et al., 2007, p. 7.

capital management system which guides personnel acquisition and development policy decisions to best support the organization's strategy, mission, and objectives.⁴⁸ In order to implement such a system, an organization must also assess employees' acquired competencies, typically through tests, interviews, or evaluation by supervisors.⁴⁹ Organizations can then compare this assessment of their competency supply with their current and forecasted demand for competencies generated by the relevant units of analysis. This comparison will then inform numerous human capital management decisions such as workforce planning, selection, training and development, and succession planning.⁵⁰ In this sense, "what gets measured gets managed," and the strategic management of human capital resources and developmental processes is one means for an organization to gain a competitive advantage.⁵¹

Despite the numerous benefits of competency based models and their role in implementing an informed human capital management system, this method is not without drawbacks. For one, competency based models do not function as a "set it and forget it" type model. To continue to provide useful information regarding human capital management, competencies respective to each unit of analysis must be updated to accommodate for changes in organizational strategy, job roles, and evolving technology.⁵² If the model's designated competencies do not appropriately match a given job's actual critically-required competencies or the organization does not continually assess and track its employees' competencies, the competency model will be useless.⁵³

Furthermore, managing and tracking the information related to the competency supply derived from an organization's employees and the competencies required by the organization's jobs may, especially for

⁴⁸ Marrelli et al., 2005, p. 557; Campion et.al., 2011, p. 230.

⁴⁹ Harzallah et al., 2006, p. 189.

⁵⁰ Marrelli et al., 2006, p. 557; Harzallah et al., 2006, p. 189.

⁵¹ Weatherly, 2003, p. 4., cited in Zula et. al, 2007, p. 258.

⁵² Marrelli et al., 2006, p. 558; Harzallah et al., 2006, p. 193.

⁵³ Zula et al., 2007, p. 258.

large organizations, necessitate the acquisition and management of some type of computer-based information management system. Having easily accessible and modifiable information on organizational competencies will also enable the continued maintenance of the competency model, ensuring that it still can effectively inform organizational human capital management practice in changing business environments.⁵⁴ Competency models thus require a significant organizational investment of time and resources in order to produce informative results.

2.2.2 Military Competency Models

While the United States armed forces do not compete against other firms in an effort to secure a competitive advantage in the business environment, the different military service branches must continually manage their human capital to ensure mission accomplishment. To improve military human capital management practices, competency models have been applied to various bodies of military personnel including USAF space and missile officers, USAF intelligence officers, the USAF Nuclear Enterprise, US Army tactical leaders, US Army information operations, the management of general and flag officers, and the development of Department of Defense wide personnel with joint experience.⁵⁵ These competency models are especially informative for military organizations because the closed, hierarchical military personnel system generally limits lateral personnel entry into job groups at the higher ranking levels. Unlike a civilian organization, the military does not have the flexibility of filling positional competency requirements by purchasing qualified human capital in the open market, and thus must ensure its internal personnel population develops the appropriate competencies.

⁵⁴ Harzallah et al., 2006, p. 197.

⁵⁵ See Vernez et. al, 2006, Brauner et al., 2009, Dues, 2011, Leonard et al., 2006, Hanser et.al, 2008, Harrel. et. al, 2004, Schirmer et. al, 2006, Markel et. al, 2011

When characterizing job-level competencies, these previous studies primarily define these competencies as specific developmental education, military training, and previous job experiences that are needed to perform well in a given job. These studies primarily use "education, training, and work experience as proxies for sets of competencies [since] it is easier to rate their importance for job performance; they are observable in officers' personnel records; and they can be used for career path management."⁵⁶ For example, the following competency categories are pulled from a longer list of categories used in defining the officer backgrounds required to perform different groups of Air Force space and missile jobs satisfactorily.⁵⁷

- **Functional Experience:** previous job experience pertaining to specific functional areas within the space and missile career field such as current operations, plans and programs, acquisition, and requirements
- **Command Experience:** previous job assignments as a commander of a squadron, group, or wing
- **Organizational Experience:** previous job assignments at different organizational levels in the USAF (i.e. Wing, Major Command, Headquarters Air Force)
- **Academic Requirements:** holding an undergraduate or graduate degree in specific fields of study

Other military competency models adopt a broader approach to defining competencies. For 198 flag officer billets, Hanser et al.(2008) classified competencies for each billet by selecting primary and secondary areas of US Navy domain expertise, or "the set of content-oriented knowledge, skills, abilities, and other personal characteristics normally associated with an occupation or career field

⁵⁶ Vernez et al., 2006, p. XVIII.

⁵⁷ Vernez et al., 2006, p.10.

in the Navy.”⁵⁸ A few examples of these areas of US Navy domain expertise include air warfare, submarine warfare, acquisition management, and nuclear propulsion.

To provide recommendations for military human capital management practices, past military competency model research efforts have primarily utilized optimization and simulation as analytic approaches to inform human capital management. Vernez et al.(2006) used a flow model which optimizes the progressive development and assignment of space and missile officers to maximize the match between officers’ accumulated competencies and the competencies required in each space and missile job group as a means of showing how deliberate workforce management could help eliminate competency gaps.⁵⁹ Hanser et al.(2008) also used an optimization approach to determine what inventory of acquired primary and secondary domain expertise in incoming flag officer cohorts best meets flag officer domain expertise competency requirements in order to compare actual flag officer cohorts to highlight potential workforce management and assignment shortcomings. Dues (2011) utilized a simulation tool to determine how dynamic endogenous and exogenous factors would likely influence competency matching in the Air Force’s nuclear enterprise over time.

2.3 SIMULATION TOOL OVERVIEW

This dissertation uses a simulation tool called the RAND Military Career Model, originally developed by RAND researcher Pete Schirmer and currently maintained by RAND programmer analyst Gary Briggs, to model the development of Force Support related competencies in order to determine the effects of different human capital management policies.

⁵⁸ Hanser et al., 2008, p. 20.

⁵⁹ The term flow model describes a modeling technique employed in past military manpower and personnel research conducted by the RAND Corporation. This modeling approach is described further in the section following the overview of the simulation tool used in this research.

This simulation model generates officers as entities in a simulation and loops these entities through time-stepped job assignment, promotion, and separation processes based on user-configured personnel management business rules designed to reflect different human capital management policies. After running the simulation, one can examine various output measures to determine the effectiveness of these human capital management approaches. In this research, the primary outcome measures pertain to personnel competency acquisition and whether such acquired competencies meet the positional demands for functional experience in the Force Support officer career field. The following sections will provide a brief explanation of the user defined inputs and procedures of RAND's Military Career Model.

The Military Career Model functions as a Monte Carlo simulation model in the sense that it accounts for the impact of uncertain elements in the Air Force manpower and personnel system. The Monte Carlo method "encompasses any technique of statistical sampling employed to approximate solutions to quantitative problems."⁶⁰ Models designed to simulate real world processes typically contain many interacting variables, some of which involve considerable uncertainty. While a deterministic model yields the same output for a given set of inputs, the inclusion of random inputs drawn from various distributions essentially turns a deterministic model into a stochastic Monte Carlo model and results in a range of outcomes for a given set of inputs over multiple simulation runs. Monte-Carlo models thus allow the decision maker to account for the impact of uncertainty on the outcome of policy decisions.

2.3.1 Simulation Tool Inputs

RAND's Military Career Model requires numerous inputs to govern the population of simulated personnel over time, the jobs which these personnel may occupy, and how personnel are assigned to such jobs.

⁶⁰ Monte Carlo Method, 2005.

To govern the population of simulated personnel over time, the simulation requires inputs related to the rate of personnel accession, promotion, and separation. Inputted promotion phase points and promotion probabilities determine the point in time at which officers are able to advance to the next grade and how many officers annually advance from one grade to the next higher grade, respectively. The simulation user determines and modifies the retention model containing probabilities of voluntary officer separation at each simulated time period. To reflect the up-or-out military personnel system, the simulation contains modifiable parameters regarding the total time an officer is allowed to spend at each grade and the total time an officer can spend in military service before being forcibly separated or retired. Considered cumulatively, these rules determine the simulated flow of personnel through the grades and the average number of personnel at each grade.

In addition to the population of personnel, the simulation user determines the population of jobs that these personnel inhabit. For any number of unique job-groups, the user inputs the number of positions in that job-group (equivalent to the number of people that may simultaneously serve in that specific job-group), the fill priority of the job-group, the minimum and maximum length of time an officer can spend in a given job-group, and numerous other properties which influence which personnel can be assigned to the job-group. For example, one can specify that a certain job-group not be inhabited by officers who previously inhabited another job-group or that the job-group can only be filled by officers possessing prior experience in another specific job-group. Most of these job-group eligibility properties that are specified in absolute terms, as in the previous examples, but can also be specified preferentially, such that an officer is simply less preferred, and not completely prohibited, from filling the given job-group if they do not meet a given criteria. If the user specifies multiple preferential eligibility criteria for a given job-group, they must also assign a priority to each criterion to indicate the relative order of importance in which the job-group

criteria should be considered when the simulation evaluates individual officers to be placed in the job-group.

If desired, the Military Career Model permits the user to integrate competencies into the job-group characteristics and eligibility rules. The Military Career Model accords some flexibility in how these competency inputs are specified, but the following explanation of the competency specification matches the approach taken in this research. Each unique group of 38F jobs is characterized by the competency it confers to officers inhabiting positions in that job-group and the ideal competencies an officer should possess before filling that job-group. The time an officer spends in given job-group determines the time-quantified level of competency proficiency each simulated officer entity acquires. For example, an officer who spends 2 years in a job-group conferring manpower functional competency adds 2 years of manpower competency to their personal portfolio of acquired competencies. To correspond with the competences acquired and supplied by the simulated officers, the ideal competencies required by the job-groups are also quantified in years of previously gained experience.

Competency-based preferential assignment rules function as the primary, highest priority non-absolute drivers affecting which officers are placed in specific job-groups in this research. For Force Support field-grade job-groups with specific functional competency requirements, officers whose competency portfolios fulfill the competency requirements are more suitable for being assigned to serve in that job-group. As the criteria for competencies are specified in preferred and not absolute terms, an officer not meeting a given job-group's competency requirements can still be placed in that job-group if there are no officers available for reassignment that possess the required competencies. This configuration ensures that the simulation always seeks to fill authorized positions with someone, which reflects the Air Force human capital management process of seeking to fill a position with a fully qualified, available officer, but not leaving a position vacant if no fully qualified officers are available for assignment.

A slight variation on the preferential assignment rules are used for the company-grade portion of the simulation. For CGO assignments, the competency based preferential assignment rules are expressed in terms of "negative requirements" in that officers are less suitable for assignment to a CGO job-group if they already possess the competency conferred by the job-group. For example, this assignment preference structure is used to promote the development of breadth during the company grades. As with the field-grade preferential competency rules, an officer will still be assigned to the job-group if no other officers meet this preferential qualification.

2.3.2 Simulation Procedures

The following loop runs from the highest to lowest grade, for each designated time-step in the model, to implement personnel management procedures. This loop operates as follows:

1. If the grade is the bottom grade, then populate it with newly created officers, otherwise, plan promotions to the next grade.⁶¹
2. Remove officers from their current jobs if they must leave them.
3. Evaluate officers, building a list, by job, of officers that are most eligible for that job.
4. Put officers into jobs.
5. Do promotions to next higher grade.
6. Retire/separate individuals in given grade.⁶²

⁶¹ Simulation runs configured for this research had 4 time steps per simulated year, corresponding to quarters of the year. In populating the bottom grade, O1/O2, during the steady state, the simulation accesses and equivalent number of officers each quarter to maintain the authorized end strength of O1/O2 officers.

⁶² Briggs and Schirmer, 2011, p.3

To determine which individuals should be placed in a given vacant job-group, the simulation utilizes a greedy algorithm. Given a body of vacant job-groups, the simulation orders these job-groups based upon their user-designated fill priority. Job-groups with the same priority fill are randomized in the ordered list among each other above job groups with a lower fill priority. Starting with the highest priority fill job-group, the simulation then looks at the current body of officers that are eligible for reassignment and for each officer, calculates a score reflecting the officer's suitability to serve in that job-group based on the job-group's absolute and preferential suitability requirements. The simulation then places the officer with highest suitability score in that job-group, and repeats the process for the next job-group.

The model uses a single-pseudo random number generator for the entire run, seeded with a single number once the model is initialized. This random number generator plays a role in determining some simulation elements, such as the fill order of job-groups assigned the same fill-priority and which specific officers voluntarily separate in each given time period. Utilizing a constant seed to the single-pseudo random number generator produces reproducible results for each configured simulation run. Initializing the single-pseudo random number generator with different numbers over multiple runs yields slightly different, but equally correct simulation results for the same career field configuration. Doing so yields slightly more robust results, but also entails a significant additional investment of limited time and computing resources.

Given these tradeoffs, the impact of different career field configurations upon 38F officer development and utilization was first explored using the same seed to the pseudo-random number generator employed in the Military Career Model. After using this approach to discern several different general policies which yield beneficial 38F officer development outcomes, a subset of the policies were explored using multiple simulation runs in different seeds initialized the single-pseudo number generator. Multiple runs with different single-random number sequences were used to take advantage of the stochastic

nature of the Military Career Model for these scenarios by exploring a variety of outcomes.

2.4 FLOW MODELS

As briefly mentioned above, the term "flow model" describes another internal RAND simulation methodology commonly employed when looking at military manpower and personnel issues. In the initial stages of work on the 38F career field, RAND used flow models to examine relevant officer development issues. This section briefly describes the methodology behind RAND flow models and also discusses these findings. Additionally, comparisons are drawn between this procedure and the simulation tool relevant to this dissertation.

2.4.1 Flow Model Procedures

As the flow model ultimately looks at managing personnel inventory to meet positional demand, the first step in constructing a flow model involves examining the positions relevant to the analysis and binning them into groups. Typical means of binning positions usually involve the position's duty title, organizational context, functional context, or some combination of these three.

After classifying relevant positions into consolidated categories, the next step typically involves delineating different sets of career paths through the different aggregate positional categories. In other words, one maps the different aggregate positional categories onto a set of career paths. Each aggregate positional category can belong in one or more career paths, but each career path should be unique in the aggregate positional categories that it contains. Different career paths are usually constructed to reflect various developmental tracks across multiple grades. In addition to specifying which consolidated job categories belong to each career path, one must specify lower and upper limits on the number of years a given officer could spend in a

given consolidated category. As these specified career paths typically map out developmental tracks through consolidated job categories over multiple grades, constraints are also specified to limit the total amount of time personnel spend at a range of grades.

Once one has identified aggregate groups of positions and constructed career paths with these positions, one then employs a modeling framework based on Little's Law to determine the feasibility of routing officers along the specified career paths. Little's Law is a foundation of queuing theory which states that the long-term average number of customers in a stable system L is equal to the long-term average effective arrival rate, λ , multiplied by the average time a customer spends in the system, W , or expressed algebraically: $L = \lambda W$.⁶³ This theoretical underpinning related to queuing theory is adapted to the concept of career paths within the flow model. For a given aggregate group of positions on a specified career path, the long-term average number of personnel in that given aggregate group of position is equal to the long-term average annual arrival rate of personnel onto that career path multiplied by the average years that personnel on that career path spend in the given aggregate category of positions. The total long-term average number of personnel in a given aggregate positional category is then equal to the sum of the long term average number of personnel in that aggregate positional category across the multiple career paths.

One can then apply a non-linear optimization framework to explore the feasibility of implementing the various career paths. In this framework, the average number of annual personnel entries onto each career path and the average lengths of time personnel spend in the given aggregate positional categories function as variables. Based on Little's Law the product of these variables determines a virtual inventory of officers filling the various positions.

⁶³ Little, John D.C. and Stephen C. Graves, "Little's Law"
<http://web.mit.edu/sgraves/www/papers/Little%27s%20Law-Published.pdf>

As covered in the descriptions of the career paths, constraints are included which place upper and lower bounds on the average lengths of time personnel spend in the given aggregate positional categories and the lengths of personnel spend across ranges of grades. Flow models are also typically include constraints on the maximum and minimum number of annual personnel entries onto each given career path. Most importantly, another constraint serves to ensure that the simulated inventory of officers filling the various positions meets the positional requirements within each aggregate positional category for the different grades.

With this framework in place, one can then optimize any number of specified objective functions to examine the feasibility and limits of different policy alternatives. In this sense, one can manipulate the objective function to maximize the use of certain developmental career paths to inform policymakers regarding targets for long-term average annual entrants into the specified career paths and long-term average job tenure requirements.

2.4.2 Previous 38F Flow Model Results

Separate field grade and company-grade flow models were initially used to examine officer development issues respective to these grades. Modeling the field grades with a flow model informed that the development of functional specialization through the field grade ranks is feasible.⁶⁴

A separate company-grade flow model was constructed to explore the feasibility of developing breadth through the company grades. Under different yearly minimum assignment lengths, the company-grade flow

⁶⁴ In the analysis coded on 38F field-grade officer specialization, the AF/A1XX had not yet specified the 21 O6 requirements for functional specialization that require 2 years of base level experience and 4 years of staff level experience in the same functional area.

model found that, at most, only around a third of entering field grade officers would be qualified with functional breadth from having separate manpower, personnel, and services assignments during the company grades. While these results were informative, some limitations in the flow models motivated further analysis using a different tool, the Military Career Model. Several of these limitations and primary differences between the utilized flow models and the Military Career Model are described in the following section.

2.4.3 Flow Models vs. Military Career Model

This section summarizes some basic differences between the employed flow models and the Military Career Model which motivated the employment of the Military Career Model in completing this analysis.

One difference can be seen in the assumptions surrounding retention and separation used in the models. Retention and separation in the flow models are accounted for by constraints which govern the maximum and minimum length of time that officers along each career path can spend across a range of grades. Optimizing the objective function then yields a long-term average length of time that all officers along that given career path will spend. For example, the minimum and maximum time constraints were placed on several field grade paths through O4 and O5 were specified to be 7 years and 10 years respectively. Optimizing the objective function while yielding to these constraints could result in the long-term average length of time that officers spend along these paths to be 8.12 years. In reality, not all officers would accumulate 8.12 years of time at O4 and O5. Some would accumulate much less time, separating from the Air Force early on in their field grade tenure, while others would accumulate more time before advancing to O6. Either way, this simplified assumption is necessary for flow modeling purposes.

In contrast with the long-term averages dictating retention behavior in the flow models, the Military Career Model accounts for individual differences in retention behavior as officers enter active

duty service, garner assignments, promote, and separate as individual entities. During each time step simulated with the Military Career Model, every officer has the possibility of separating. This more accurately reflects actual personnel separation and retention behavior in the military.

A second benefit of the Military Career Model is that it by quantifying positional prerequisites in years of functional experience and also coding positions based on what functional experience they confer, one can specifically verify whether such specialized functional requirements can be met. These capabilities did not exist in the utilized flow models. In the context of the flow model research, the verification of the feasibility of 38F field-grade specialization resulted from flow model results that showed approximately 33% of annual field grade entrants could be vectored along specialization paths in which they would primarily serve in positions relevant to a specific functional area, resulting in the development of specialized functional knowledge in either manpower, personnel, or services. While these results stand, at the time of this flow-model research, the requirements for O6 functional specialization were not specifically quantified in years of past functional experience, it was just acknowledged that some functional specialization in the O6 38F population was necessary. As these requirements for functional specialization were later quantified by AF/A1XX in yearly amounts, the need arose for a more comprehensive simulation model which could simultaneously track accumulated functional experience in the simulated officer inventory, make assignment decisions based on time-quantified functional requirements, and explore gaps in officer development. The Military Career Model provided these accounted for these time quantified functional experience requirements.

The utilization of the Military Career Model also allowed for the accounting of the developmental impact of field grade billets that have no specific prerequisite functional requirements but do confer a specific functional experience to officers inhabiting the billet. This capability was not available in the utilized flow models. Before constructing the flow models, each relevant 38F position was coded

based on what functional experience an officer should ideally possess before inhabiting the billet and what functional experience they billet confers to officers occupying the billet. While both of these elements were coded for each relevant 38F position, the career paths constructed within the field grade flow model only accounted for the prerequisite functional component relative to each position. In the field-grade career paths developing specialization, officers are vectored to positions relative to the same type of functional prerequisite. It was assumed that the characterization of these prerequisite functional requirements would significantly correspond with the types of developmental functional skills and experience the positions would provide to incumbent officers along each path, but in actuality this is not always the case. There are numerous 38F relevant positions for which the desired prerequisite functional experience and the functional experience conferred differ, and there are also positions that have no specific prerequisite functional experience requirements, but do confer a certain type of functional experience to billet inhabitants.⁶⁵ The utilized flow models did not account for the developmental impact of these billets without functional prerequisites that build functional competency because the specialized career-paths were based on prerequisite functional experience requirements. As the Military Career Model allows for the simultaneous accounting of billet functional prerequisites in making assignment decisions and potential differences in what functional experience the billet confers to incumbent officers, it provided an enhanced capability over the previously employed flow model.

A final benefit of the Military Career Model is its ability to perform Monte Carlo simulation to account for a range of possible outcomes for a given set of inputs due to some uncertainty inherent in personnel retention and assignment patterns. In contrast, the

⁶⁵ Information showing the coding of 38F billet functional experience requirements and what functional experience these billets confer is displayed in Appendix B.

nonlinear optimization framework employed in the flow models replaces these elements of uncertainty with single long-term average values, which may generate flaws in the flow model analysis process.

3. ESTABLISHING FORCE SUPPORT SUSTAINABILITY

The current structure of Force Support officer authorizations is not sustainable. This chapter demonstrates why the current distribution of 38F authorizations is not sustainable and illustrates changes that need to be made to the 38F authorization structure to establish sustainability.

3.1 CURRENT 38F AUTHORIZATION STRUCTURE IS UNSUSTAINABLE

This research takes the view that a given career field can generally be deemed sustainable when, with 100 percent manning at a given grade, the promotion base will typically support 100 percent manning at the next higher grade. In other words, the supply of officers at a given grade in a given career field should be roughly equivalent to the number of positions authorized to the career field in that grade, and the number of officers at that grade should ideally support the same result at the next higher grade in the career field.

In reality, Air Force personnel do not always stay strictly confined to one career field when they flow through the grades, as there are authorizations which multiple career fields hold the responsibility for filling and personnel can sometimes transfer between career fields at different points in their careers.⁶⁶ Thus, the exact number of personnel assigned to a career field at each grade and filling that career fields' authorizations can undergo small fluctuations on yearly basis and is not always directly attributable to the number of personnel in the lower grade which provides the promotion base. Nevertheless, the overwhelming number of personnel at a given

⁶⁶ These jobs that multiple career fields hold the responsibility of filling are generally referred to as "tax" jobs – they are filled by "taxing" the established career fields to provide sufficient numbers of their officers to meet the multiple-career-field requirements.

grade in a given career field are derived from the promotion base provided by the personnel at the lower grade in the same career field. In a sustainable state, the number of personnel at each grade in the career field should roughly match the number of authorized billets allocated for that grade in the career field.

In the context of military human capital management, a sustainable career field structure seems an ideal prerequisite before moving to advance a more comprehensive competency-based human capital management system. When a career field is in an unsustainable state, certain grades will be either undermanned or over-manned and not all personnel at a given grade will be allocated developmental positions respective to that grade. If there are too few captain authorizations relative to the number of captains in the career field population, they may be forced to fill higher grade major and lieutenant colonel billets for which they have not developed the necessary leadership experience. At the same time, it will be difficult for a career field to plan for effective human capital competency development when the average number of personnel at each grade does not correspond with opportunities for competency development found in the number of billets at that grade.

The unsustainable mix of company grade and field-grade authorizations may create further issues. When the number of field-grade authorizations consistently exceeds the sustainable inventory of field-grade officers, the personnel management system cannot discern which field-grade billets truly have the greatest need for more experienced field-grade personnel. The unsustainable number of field-grade authorizations also creates false, unrealistic expectations among unit commanders and personnel managers regarding the manning to which units relevant to the 38F career field are entitled. On a larger scale, the unsustainable grade structure could lead to the inappropriate employment of mid-career retention bonuses in an attempt to mold the inventory of 38F officers to match the unsustainable authorization structure.

The following two sections take two approaches to illustrating that the structure of the 38F career field is unsustainable and thus limits deliberate human capital management and development. The first

approach simply provides recent annual snapshots of the imbalance between the 38F personnel at each grade and the relevant 38F authorizations at each grade. The second approach takes a more mathematical approach to demonstrating the unsustainable authorization structure by explaining the parameters influencing the size of personnel populations at each grade and thus the manning percentages which determine sustainability.

3.1.1 Imbalance Between 38F Personnel and Authorizations

RAND personnel captured relevant Force Support officer manpower authorizations in September 2010. Positions for which 38F served as the duty AFSC, the AFSC specific to the manpower authorization itself, and also to positions with other duty AFSCs but occupied by officers with a primary 38F AFSC at the time of the September 2010 data pull were considered relevant to this analysis. Including Force Support officers serving in non-Force Support positions captures the Force Support community's share of filling tax billets and non 38F duty AFSC leadership positions. Table 3.1 illustrates how these 1704 positions are distributed based on the specific grade associated with the authorization.

**Table 3.1
Distribution of Relevant 38F Authorizations By Grade**

Grade	Number of Relevant 38F Billets
O1/O2	164
O3	581
CGO Subtotal	745
O4	425
O5	406
O6	128
FGO Subtotal	959
Total	1704

Table 3.1 shows that there are more field-grade authorizations (O4, O5, & O6) than there are company-grade authorizations (O1/O2 & O3). As greater numbers of company-grade personnel provide the

promotion base for the higher ranking, smaller population of field-grade personnel, the authorization structure should generally reflect the typical ratios of company grade to field-grade officers to be sustainable. The distribution of 38F personnel between the company grades and the field-grades from the end of fiscal year 2009 and end of fiscal year 2010 snapshots, shown in Table 3.2, illustrates how the larger quantity of company-grade officers form the promotion base for the smaller sized field-grade population, unlike the 38F authorizations. The ratio of company grade to field-grade personnel from these data pulls is roughly inverse to the ratio of company grade to field-grade authorizations.

Table 3.2
Grade Distribution of Assigned 38F officers at End of FY2009 & FY2010

Grade	Number of 38F Personnel (End of FY2009)	Number of 38F Personnel (End of FY2010)
O1/O2	391	417
O3	741	771
O4	419	428
O5	330	295
O6	83	79
Total	1964	1990

Note: The numbers of personnel for grades O1 through O5 in the table were found via querying AFPC's web-based Interactive Demographic Analysis System (IDEAS) for the # of core 38F personnel in each grade. AFPC's IDEAS does not display the same information for those officers at the grade of O6, so the numbers for O6 are the result of a query to display the numbers of personnel with the 38F duty AFSC (duty AFSC: the AFSC of the actual manpower position the person is assigned), or the O6s assigned to O6 38F jobs. Of the 83 O6s with DAFSC 38F from the end of FY2009 query, 70 are classified as non-rated line and 13 are classified as rated line. Of the 79 O6s with DAFSC 38F from the end of the FY2010 query, 62 are classified as non-rated line and 17 are classified as rated line. The distinction between non-rated line and rated line O6 officers in 38F DAFSC billets likely corresponds with those officers who developed within the 38F career field (and the legacy career fields) and those officers who cross flowed in from operational flying careers, respectively.

While the total FY2009 and total FY2010 38F officer populations seem to indicate an overall over-manned career field, by comparing the population of 38F officers at each grade to the authorizations designated for officers serving in that grade, one can still see that

there are more 38F company-grade officers than 38F billets allocated for company-grade officers. In the field grades, the situation is reversed. Table 3.3 displays the calculated company grade and field-grade manning percentages based on FY2009 and FY2010 end of fiscal year personnel numbers relative to the relevant 38F authorizations in FY2010.

Table 3.3
Distribution of 38F Officers at End of FY2009 & FY2010

Grade	FY2009 Manning (%)	FY2010 Manning (%)
Company Grade	151.9	159.5
Field Grade	86.8	83.6

Simply put, the flow of 38F personnel do not match the billets for these personnel to fill at the company grades and the field grades. For all practical purposes, separate AFPC analysis from January 3, 2011 confirms this issue of unsustainability. Figure 3.1 shows the results of 38F career field analysis performed by Mr. Jason Williams of AFPC's Research, Analysis, & Data Division.

Figure 3.1
FY2010 Force Support Career Field Health



SOURCE: Figure taken from Mr. Jason Williams's "Career Field Analysis: Force Support" briefing for AFPC/DSYA.

Figure 3.1 tells the same story with regards to Force Support field grade and company-grade unsustainability. The core inventory of

38F officers at the company grades exceeds the company-grade 38F authorizations, and the opposite situation is true for the field grades. Additionally, the 38F career field is over-manned with significant number of 38F officers serving in non-38F DAFSC billets.

3.1.2 Parameters Determining Personnel Flow and Career Field Manning

The average number of personnel in a given grade is a function of the average annual entrants into that grade and the average length of time officers spend in that grade. Little's Law, primarily known for its relation to queuing theory, can also be used to assert that for a given grade,

$$\text{Average \# of Officers in the Grade} = \text{Average Time in Grade (Years)} \times \text{Average Annual Entrants in Grade}^{67}$$

The two components, average time in grade (TIG) and average annual entrants into the grade, which determine the average number of officers in the grade are roughly fixed by the Defense Officer Personnel Management Act (DOPMA) practices that provide a standard career progression pattern for military officers via common promotion, separation, and retirement rules.

Table 3.4 shows these DOPMA defined promotion opportunities to the next higher grade based on the cumulative percentage of a given cohort that advance to the next higher grade and when such a cohort becomes eligible for such an opportunity for advancement. For example, those officers in the grade of O3 have an 80% chance of being advanced to the grade of O4 around roughly 10 Years of Service (YOS). Those officers in the grade of O4 with around 16 YOS have a 70% chance of being advanced to the grade of O5. There is some flexibility with the promotion timing to O4, O5, and O6, but officers primarily progress based on the illustrated pattern. DOPMA also defines the career

⁶⁷ Little, 1961, p. 383-387.

expectation, or how long officers are permitted to stay in the service after being repeatedly passed over for promotion to the next higher grade.

Table 3.4
DOPMA Up-or-Out Promotion System

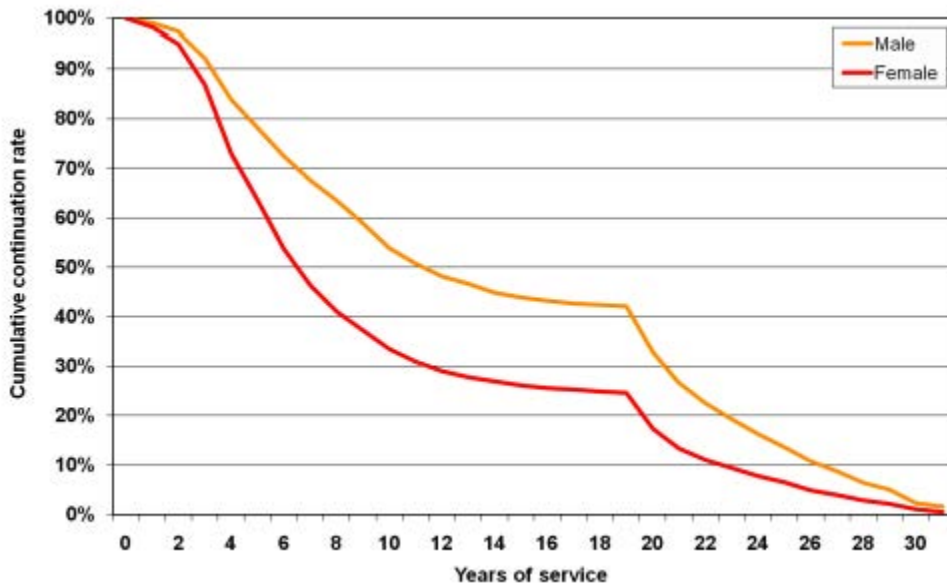
Grade	Promotion Opportunity (% promoted from surviving cohort)	Promotion Timing (Promotion Zone Years of Service)	Career Expectation
O2	100%	2	2x nonselect & separation
O3	95%	3.5/4	2x nonselect & separation or may be allowed to stay on active duty until retirement at 20 years of service (YOS)
O4	80%	10±1	2x nonselect & separation or may be allowed to stay until 24 YOS, normal retirement at 20 YOS
O5	70%	16±1	30% of 2x nonselectees can be retired before normal (28 YOS) retirement
O6	50%	22±1	Normal retirement at 30 YOS, but 30% early retirement possible after 4 years in grade

SOURCE: Adapted from Rostker et al, 1980, p. 14.

DOPMA's fixed promotion opportunities dictate the average annual entrants into a given grade and largely determine the average time officers spend in a given grade. Retention patterns also play a major role in the average time spent by officers in a given grade. Not all

officers in an accessed cohort will remain in the Air Force until the next promotion opportunity because officers leave the Air Force for a variety of reasons. This is shown in the synthetic cumulative continuation rates (CCRs) displayed in Figure 3.2.⁶⁸ A cumulative continuation rate is the percentage of an entering officer cohort that remains at a later year of service.

Figure 3.2
Synthetic AF Cumulative Continuation Rates, FY2000-FY2008



SOURCE: Military Leadership Diversity Commission Paper #24,2010, p. 4.

⁶⁸ These cumulative continuation rates do not describe the retention behavior of any single accession cohort, but rather provide retention estimates for synthetic cohorts. Synthetic cohorts aggregate retention behavior from multiple accession cohorts to simulate retention behavior if a cohort behaved like all of the individuals that appeared in a given fiscal year. Using synthetic cumulative continuation rates resulting from average retention behavior over multiple cohorts allows for the examination of general retention patterns. Just examining the retention patterns of one cohort exposes one to the risk of random fluctuations that may occur in a single fiscal year.

Figure 3.2 shows a steep decline in the CCRS between YOS 4 and YOS 10, indicating that many Air Force officers separate during the company grades. Thus, while DOPMA dictates that officers typically spend 10 years in the company grades before becoming eligible for promotion to O4, the expected, or average, years of service per company-grade entrant is actually less than 10 years due to many officers leaving the USAF during the company grades.

One can apply this collective information to show that the 38F career field is unsustainable because 100% manning at one group of officer grades will not provide 100% manning at the next higher group of officer grades. Synthetic 38F CCRs used in this research roughly show that one can expect, on average, 8.83 years of company-grade service per O1 accession,⁶⁹ with approximately 70% of an entering O1 cohort remaining until the 10-year promotion eligibility point to the field grades. If one considers the next twelve years, or the time DOPMA deems an officer should spend at O4 and O5 before becoming eligible for promotion to O6, one can expect 9.29 years of officer service during this time. With a reasonable calculation of the years of service one can expect from the average annual entrant into the company grades and field grades, one can then calculate the average number of annual entrants needed to sustain 100% manning for these authorizations.

Table 3.5
Average Annual Entrants Needed to Secure 100% Manning

Grades	Avg. Annual Entrants	Avg. TIG	Average # of Officers	# of Authorizations	Manning (%)
O1/O2 & O3	84.4	8.33	745	745	100
O4 & O5	89.5	9.29	831	831	100

Table 3.5 shows that one needs, on average, 89.5 annual entrants into O4 in order to sustain 100% manning in the population of O4/O5

⁶⁹ Details regarding the calculation of the expected years of services per CGO and FGO entrant are contained in Appendix C.

billets. Unfortunately, with 84.4 annual entrants into the company grades and only around 70% of an entering cohort retaining to the promotion phase point for O4, only 59.1 company graders will be eligible for promotion to O4 on an annual basis. Making the assumption that all 59.1 of these eligible company graders are promoted to O4 and the average times officers spend in the grades remains fixed, this will not yield 100% manning at the field grades. Thus, 100% manning at the company grades does not provide a large enough promotion base to sustain 100% manning at the field grades. This situation is depicted in Table 3.6.

Table 3.6
100% Manning in CGO Billets Does Not Sustain O4 & O5 Billets

Grades	Avg. Annual Entrants	Avg. TIG	Average # of Officers	# of Authorizations	Manning (%)
O1/O2 & O3	84.4	8.33	745	745	100
O4 & O5	59.1	9.29	549	831	66.1

To secure 100% manning at O4 & O5 while maintaining 100% manning at the company grades the 38F career field would need to cross-flow in additional entrants at the beginning of O4 to make up for the lack of promotion-based entrants provided by the company-grade population.

Another approach to securing 100% manning at the field grades would be to man the company grades above their authorized end strength so that the company-grade promotion base can sustain the field grades. With 89.5 annual field-grade entrants needed to sustain 100% O4 & O5 manning and assuming the same company-grade retention patterns, the career field would need to access 127.8 O1s annually just to provide the minimum sized promotion base to O4.⁷⁰

⁷⁰ This calculation of the needed 127.8 company-grade annual entrants assumes that all company-grade officers promote to O4 when they reach the eligible promotion phase point. In actuality, this is not the case.

Table 3.7
Excess CGOs Sustain 100% FGO Manning

Grades	Avg. Annual Entrants	Avg. TIG	Average # of Officers	# of Authorizations	Manning (%)
01/02 & 03	127.8	8.33	1064.6	745	142.8
04 & 05	89.5	9.29	831	831	100

The situation depicted in Figure 3.7 seemingly depicts the current unsustainability in the 38F career field between the company grades and field grades. Given the excess number of 38F company-grade officers relative to available billets, they are directed to serve in the field-grade billets.

Yet another likely means of managing the 38F career field is to access enough officers to sustain the whole career field, not just the individual CGO and FGO segments of it. Summing the synthetic cumulative continuation rates relative to the 38F career field shows that one can expect 15.59 years of service, on average, per 01/02 accession. To sustain an end strength of 1704 officers, the career field would need to access 109.3 officers, per year on average. Accessing 109.3 officers per year into the company grades would result in the following breakout of manning between the company grades and the field grades displayed in Table 3.8 while creating 100% aggregate manning across the 38F career field.

Table 3.8
Accessing CGOs to Sustain the Entire 38F Career Field

Grades	Avg. Annual Entrants	Avg. TIG	Average # of Officers	# of Authorizations	Manning (%)
01/02 & 03	109.3	8.33	910.5	745	122.1
04 & 05	76.5	9.29	710.8	831	85.5

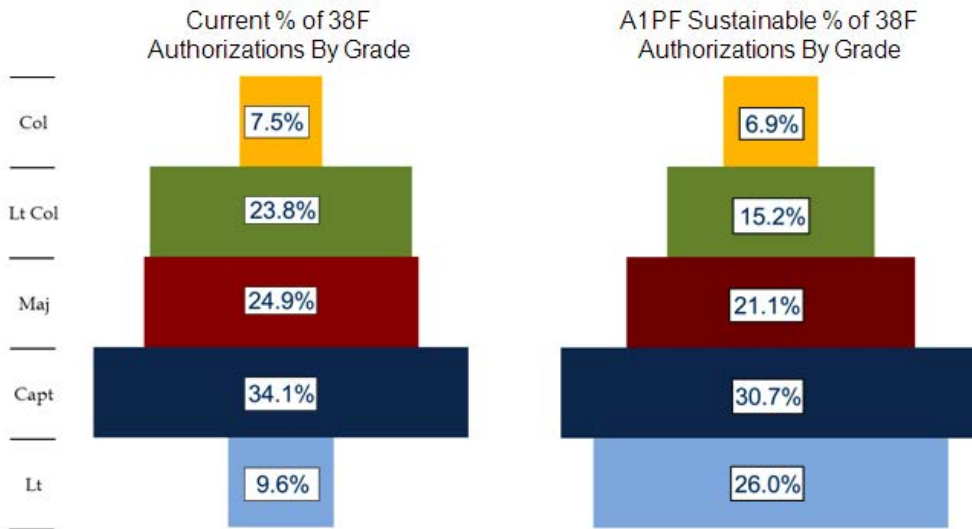
One should note that while this section focused on the current unsustainability between the company grades and the field grades, problems of unsustainability also exist when looking at the separate grades contained within the company grades and the 04 and 05

authorizations within the field grades. Looking at the company grades, if the 164 O1/O2 billets are 100% manned, the O1/O2 promotion base will not support 100% O3 manning of the 581 O3 authorizations. In the field grades, a similar situation exists between the O4 and O5 authorizations.

3.2 VALIDATING A SUSTAINABLE 38F GRADE STRUCTURE

The Air Force Directorate of Force Management Policy, Force Management Division (AF/A1PF) was consulted for guidance on their view of 38F officer sustainment. AF/A1PF produces charts which depict sustainable grade structures for all Air Force career fields, and their depiction of a sustainable 38F authorization structure compared to the current distribution of 38F authorizations is shown in Figure 3.3.

Figure 3.3
Current 38F Authorization Structure vs. A1PF Sustainable Authorization Structure



A1PF derives this grade structure by first using their own comprehensive model which incorporates historical accession, retention, promotion parameters, and cross flow between different Air Force career fields to calculate the expected number of officers present in each commissioned year of services (CYOS) within a given career field.

After determining the expected number of officers at each CYOS within a career field, historical personnel data from the previous 5 years is examined to determine the proportion of officers at each grade within each CYOS and calculate the expected number of officers at each grade within a CYOS relative to a specific career field. The sustainable total number of authorizations at a given grade is then found by summing across each CYOS.

A1PF's process of deriving a sustainable grade structure logically incorporates many variables determining USAF personnel strength, but given the incidence of recent short-term officer force management measures intended to decrease Air Force strength, there was some concern that the historical percentage of officers by grade in each CYOS might be skewed and thus could affect A1PF's depiction of a sustainable grade distribution. The MCM provided a means to test whether this could possibly be an issue and ensure that A1PF's grade structure would be sustainable with the steady-state flow of personnel.

With A1PF-specified retention, promotion, and up-or-out separation rules forming the basis for MCM simulation inputs regulating personnel flow, the results of the simulation confirmed that A1PF's advertised grade structure is roughly sustainable at grades O1/O2 through O5.⁷¹ To supply the necessary personnel to sustain 100% manning at O6, some individuals would need to be cross-flowed into the career field at O6, but it appears this practice is already embraced.⁷² Table 3.9 compares A1PF's sustainable distribution of authorizations by grade to the average strength of simulated personnel at each grade derived by the MCM.

⁷¹ Appendix C contains the specific promotion and retention inputs used in the simulation model.

⁷² Table 3.2 shows some rated line officers currently with a 38F DAFSC, indicating non-core 38F officers serving in 38F related billets at O6.

Table 3.9
A1PF Sustainable Grade Authorization Structure & Sustainable Avg.
Personnel End Strength Derived from MCM

Grades	A1PF Sustainable Grade Distribution (%)	Average Personnel Grade Distribution from MCM (%)
O1/O2	26	24.1
O3	30.7	31.2
O4	21.1	21
O5	15.2	16.9
O6	6.9	6.8

The average simulated personnel end strengths at each grade, which closely approximate A1PF's sustainable distribution of authorizations, served as a guide to move towards a sustainable Force Support authorization structure. To move to a sustainable authorization structure, the 38F community would need to decrease the number of O3, O4, O5, and O6 billets, while greatly increasing the number of billets allocated for the population of O1/O2 officers. The specific changes needed at each grade to establish sustainability are shown in Table 3.9. One should notice that the net sum of these changes does not result in an increase in the total number of billets, just a reallocation of the number of billets at each grade.

Table 3.10
Authorization Changes Needed To Reach Sustainability

Grades	Current # of 38F Relevant Authorizations by Grade	Authorization Changes to Reach Sustainability	Sustainable # of 38F Relevant Authorizations by Grade
O1/O2	164	Add 247	411
O3	581	Remove 49	532
O4	425	Remove 68	357
O5	406	Remove 119	287
O6	128	Remove 11	117

Table 3.10 shows the specific changes needed at each grade to establish sustainability, but the Force Support community must more specifically consider the impact of these changes on Force Support

competency development goals. The specific types of billets removed from the population of 03, 04, 05, and 06 authorizations and added to 01/02 will directly impact the ability of the Force Support community to meet competency development goals. To better guide these decisions, the Military Career Model is used to explore different policy approaches to reconfiguring and managing this authorization structure for needed Force Support competency development.

4. DEVELOPING BREADTH IN THE COMPANY GRADES

This chapter illustrates that breadth can only be developed to a limited extent in Force Support officers during the company grades. Officers would be characterized as possessing breadth if they acquired manpower, personnel, and services competencies before entering the field grades. Breadth development is limited in the sense that not all officers in a given cohort entering the field grades will possess company-grade experience in the functional areas of manpower, personnel, and services.

4.1 FEW MANPOWER & SERVICES LEARNING OPPORTUNITIES IN COMPANY GRADES

Officers occupy company-grade billets during their first ten years in the Force Support career field at the grade of O1, O2, and O3. Company-grade assignments are generally viewed as developmental learning opportunities, where young officers gain exposure and acquire new competencies through on-the-job training. In the competency framework used in this analysis, company-grade billets do not have specific required competencies that an officer should possess before occupying the billet. With this mindset, RAND personnel and Col. Daniel Merry, a 2010-2011 Senior Air Force RAND Fellow, coded current Force Support company-grade positions based on the competency that an officer inhabiting such a billet would acquire. Table 4.1 displays the distribution of these company-grade positions by the functional experience they confer to officers inhabiting the billet.

Table 4.1
Distribution of Competencies Conferred in Current 38F CGO Billets

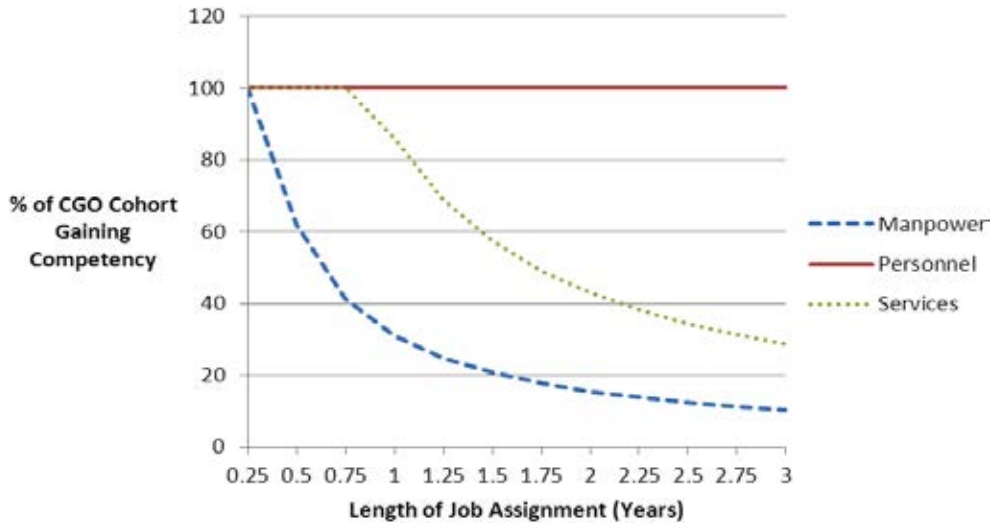
Grades	Manpower	Personnel	Services	Force Support	Other	Total
O1/O2	9	83	11	21	40	164
O3	22	219	75	77	188	581
Total	31	302	86	98	228	745

When coding the competencies granted by 38F company-grade jobs, Force Support jobs were identified as those jobs which provide exposure to manpower, personnel, and services, but do not allow for the actual acquisition of any one of these specific competencies. Thus, these Force Support jobs do not contribute to the development of breadth. As such, an officer must successively occupy a manpower job, a services job, and a personnel job in order to be qualified with breadth.

The relative lack of company-grade positions conferring manpower and services competency limits the number of officers in a given company-grade cohort who can acquire these competencies, and thus acquire a breadth of Force Support experience before entering the field grades. This situation is illustrated in Figure 4.1

Figure 4.1 shows how the relationship between the number of billets conferring a specific functional area and the desired assignment length determines the proportion of officers in a given cohort who will acquire a given competency. For example, with 86 company-grade billets conferring services competency, 86 company-grade officers could occupy the services billets for one year. After the completion of this services assignment, all of the officers in this initial cohort of company-grade officers would leave the services billets, and 86 officers in the next company-grade cohort would begin their one year services assignments. If a 2 year assignment length was desired, only 43 officers in a given cohort would gain the services functional competency. This calculation, like the calculation for the average number of officers in a given grade, is also derived from Little's Law. In this case, the number of officers inhabiting a group of billets is equal to the product of the annual entrants into that group of billets and the average length of time officers spend inhabiting the billets. Based on the constraint that no more than one officer can occupy a given billet, with a fixed number of billets, the assignment length determines how many officers in a given cohort will gain a given competency.

Figure 4.1
Assignment System Dynamics Influence Cohort Competency Acquisition



Note: % of CGO Cohort Gaining Competency calculated from an assumed entering CGO cohort of 100 officers.

One can see that the relative scarcity of manpower and services billets relative to personnel billets limits the number of officers who acquire such competencies in the company grades. On the other hand, personnel billets are abundant and all officers in a given cohort can acquire this competency at up to 3 year assignment lengths. The difficulty in building breadth during the company grades lies in the limited opportunity for an officer to obtain the scarce manpower and services assignments.

4.2 SIMULATION OF A BREADTH PROMOTING CGO ASSIGNMENT MANAGEMENT APPROACH

The Military Career Model provides a means to simulate the flow of officers through the company grades and determine to what extent cohorts of entering field-grade officers possess a breadth of Force Support functional experience acquired from their company-grade assignments.

To simulate this competency acquisition, the company grades were first restructured to resemble the sustainable grade structure derived in Chapter 3. This entailed adding 247 billets to population of 01/02

authorizations and removing 49 billets from the O3 authorizations so that the population of O1/O2 and O3 authorizations matched the number of personnel at these grades. O1/O2 billets conferring manpower, services, and force support functional competencies were added in greater numbers to functionally balance the O1/O2 billet population. The current population of O1/O2 billets contains very few that confer manpower and services experience, so these billets were added in greater numbers than personnel conferring billets. Given the relative overrepresentation of personnel billets at O3, 49 O3 personnel billets were removed. This chosen approach of reaching a sustainable Force Support company-grade authorization structure is shown below in Table 4.2. One should note that as in the original functional distribution of positions, manpower and services conferring positions are still relatively scarce.

Table 4.2
Distribution of Competencies Conferred in Sustainable 38F CGO Billet Population

Grades	Manpower	Personnel	Services	Force Support	Other	Total
O1/O2	92	94	92	93	40	411
O3	22	170	75	77	188	532
Total	114	264	167	170	228	943

To simulate the effect of assignment management policies promoting company-grade breadth acquisition, negative preferential assignment rules accompanied each company-grade billet. These rules made an officer a less favorable candidate for the job if they already possessed the same functional experience the billet conferred. In this configuration, when seeking to fill a manpower-conferring billet, an officer with no acquired manpower experience would be a more suitable fit than an officer whom already possessed manpower experience, and the officer with no manpower experience would be placed in the manpower billet. This policy promotes development of breadth by preventing

officers from repeating assignments related to the same functional area.⁷³ If the same officers inhabit the relatively scarce manpower or services billets multiple times, other officers would be prevented from gaining manpower or services competencies, and the development of breadth would be inhibited.

The MCM demonstrates that this breadth-promoting assignment management policy results in a significant improvement in breadth development over a policy that does not factor in the officer's previously acquired competencies when making assignment decisions. Using the MCM, simulated officers flowed through the company grades, occupying 2 year assignments.⁷⁴ When officers pass through a company-grade configuration described by Table 4.2 and they are vectored for breadth development, on average, 48.9% of an entering field-grade cohort will possess 2 years each of manpower, personnel, and services experience. In contrast, when simulated officers pass through the same company-grade configuration and assignment decisions are made by randomly selecting an officer eligible for reassignment, only 17.8% of entering field-grade officers will meet the same breadth qualification on average.

One should note that this analysis does not claim that 48.9% is the absolute upper limit on the proportion of those officers entering a field-grade cohort that will be qualified with breadth. This analysis only shows the upper limit for breadth development when the company grades are configured as shown in Table 4.2 lies near 48.9%. In moving

⁷³ The simulation seeks to prevent officers from inhabiting a billet for which they already possess the functional competency that the billet confers, but officers will have repeat assignments to those types of billets which make up a majority of the billet population, such as personnel billets. The simulation will not leave a billet empty just because all of the officers available for reassignment already possess the functional experience conferred by the billet.

⁷⁴ 38F community leadership presented a company-grade developmental framework in which officers occupy assignments for 2 years before rotating to a different company-grade assignment as their preferred approach.

to a sustainable authorization structure, the 01/02 authorizations were rebalanced functionally and 49 personnel billets were removed from 03 authorizations, but the overall company-grade functional distribution is still heavy on personnel billets. Rearranging the population of 03 billets for equal manpower, personnel, and services billet representation while employing similar breadth-promoting assignment policies would increase breadth development in entering field-grade cohorts, but maximization of breadth development in the company grades should not be a career field management goal in and of itself. The career field simply needs to be structured and managed such that the average cohort of officers entering the field grades provides is capable of filling field-grade competency requirements. This issue is further explored in Chapter 5.

4.3 BREADTH BUILDING AND LOCATION CHANGES

Beyond the simple goal of being able to ensure that 38F officers enter the field grades with breadth of functional experience, Force Support community leaders further envisioned a breadth building developmental framework wherein company-grade officers would be assigned to a given location, typically an Air Force base, for 4 years at a time. During this 4 year stint at a given location, officers would then ideally occupy 2 billets in different functional areas for 2 years at a time. This proposed developmental framework would help diminish officer location changes, which lead to costs for the USAF. Thus, a location's capacity to give officers experience depends on the number of jobs of the various types that it has and the durations of officers' assignments to these jobs.

This proposed developmental framework makes sense in theory, but the current functional distribution of 38F billets by location makes it difficult to uniformly build breadth while adopting this approach of assigning an officer to a given location for 4 years at a time. Of the 162 locations which contain company-grade authorizations, 112 of these

locations have a manpower, personnel, services, or force support conferring billet or billets.⁷⁵ Table 4.3 shows the number of locations by the type of functional company-grade billets that are contained at the location.

Table 4.3
Distribution of Locations By Functional Billets Contained

Location Contains Billets Granting Listed Functional Experience	# of Locations	% of Locations
Services, Personnel, & Force Support	27	24.1
Personnel	24	21.4
Services & Personnel	18	16.1
Force Support	14	12.5
Manpower, Personnel, Services, & Force Support	11	9.8
Personnel and Force Support	9	8.0
Services	4	3.6
Manpower	2	1.8
Manpower, Personnel, and Services	1	0.9
Services and Force Support	1	0.9
Manpower and Personnel	1	0.9
Total	112	100

Table 4.3 highlights some developmental limitations created by the functional distribution of billets available at a given location. Fifty-seven locations contain services and personnel conferring billets, which allow for an officer to spend 2 years in services conferring billet and 2 years in a personnel conferring billet during a 4 year assignment to that location. While numerous locations allow for the successive acquisition of personnel and services functional competency, there are fewer locations that contain either manpower and personnel billets or manpower and services billets. Only 13 locations allow for the acquisition of 2 years of manpower and personnel competency in a single 4 year assignment to one location. Sequential acquisition of manpower and services functional competencies in a 4

⁷⁵ A large number of locations contain billets that do not confer a Force Support related competency.

year stint at one location is even more limited, with only 12 locations containing both manpower and services billets.

There is also a large body of locations which only contain 38F billets related to one functional area. Twenty-four locations only have personnel billets and 14 locations only have Force Support conferring billets. An officer assigned to one of these locations for a 4 year time period does not have the opportunity to rotate into a new billet respective to a different functional area after accumulating 2 years of experience in one functional area. In order to be exposed to a new functional area, they would have to undergo a location change. This limits the feasibility of the proposed framework for the development of breadth in 38F company-grade officers.

If the 38F community is committed to this breadth-building framework within the context of restoring and functionally rebalancing a sustainable grade structure, it should seek to co-locate billets of different functional types. With the current shortage in manpower conferring O1/O2 billets and the need for additional O1/O2 billets to move towards a sustainable authorization structure, the 38F community should ideally seek to generate manpower billets at the bulk of company-grade locations that are currently missing this functional area. Placing manpower conferring billets at the locations in the top three rows of Table 4.3 would greatly increase the opportunities for officers to be developed for breadth in manpower and one other functional area during one 4 year assignment. A similar perspective should be adopted when considering where to allocate additional services billets.

4.4 BREADTH BUILDING AND FIELD-GRADE REQUIREMENTS

This chapter focuses on the feasibility of developing breadth during the company grades via successive 2 year assignments because 38F community leadership presented this framework as their favored approach towards best preparing 38F officers for future field-grade service. Seeking to build company-grade breadth via sequential exposure to

manpower, personnel, and services billets does provide the benefit of giving officers a wide range of knowledge and exposure regarding 38F roles and responsibilities, but such an approach may not be necessary to fill immediate field-grade functional requirements.

Of the functional requirements specified for O4 and O5 38F authorizations, none of them simultaneously specify that an officer should ideally possess previous experience in both manpower and services. An officer entering the field grades with prior functional experience in both manpower and services does not specifically provide more immediate benefit to filling O4 and O5 functional requirements compared to an officer only possessing manpower experience or an officer only possessing services functional experience. If the officer with previously accumulated manpower and services experience fills a field-grade billet requiring previous manpower experience, their services experience will go unutilized, and vice versa. In this sense, a company-grade developmental framework which seeks to give an officer either exposure to manpower or services conferring assignments, but not both, would also fulfill O4 and O5 functional billet requirements while giving the 38F community a little more flexibility when making company-grade assignment decisions.

Unlike the O4 and O5 authorizations, there are 8 O6 authorizations which do require both prior manpower and services experience. If adopting a company-grade developmental framework in which no officers would enter the field grades with previous functional experience in both manpower and services, there are some learning opportunities within the population of O4 and O5 38F authorizations for officers to acquire manpower and services experience. Among the O4 authorizations, there are 20 billets which confer manpower experience without requiring any previous manpower experience and 13 billets which confer services experience without requiring any prior services experience. For the O5 authorizations, there are 4 billets conferring manpower experience without requiring any prior manpower experience and 4 billets conferring services experience without requiring prior services experience. An officer who shows early potential and is likely destined to serve in one of these O6 positions can be

deliberately vectored to one of these field-grade learning positions so they can gain the functional competency they were not exposed to during the company grades.

Given that no O4 and O5 billets specifically require an officer to possess previous manpower and services competency and very few O6 billets possess these requirements, it does not appear absolutely critical for all company-grade officers to be purposefully developed with both manpower and services assignments during the company grades. This knowledge provides the Force Support career field with some additional leeway and flexibility regarding company-grade assignment management.

5. FULFILLING FIELD-GRADE REQUIREMENTS FOR DEPTH

This chapter explores whether a reconfigured and sustainable 38F career field can provide enough appropriately qualified officers to meet field-grade requirements. While there are field-grade requirements for breadth of Force Support functional competencies and depth in one functional competency, this chapter focuses on the requirements posed by a small body of specialized O6 billets responsible for 38F policy formulation.^{76,77} These specialized O6 requirements demand a supply of officers possessing deep competency experience in one functional area across multiple Air Force organizations.

5.1 FIELD-GRADE COMPETENCY REQUIREMENTS

While 38F company-grade billets were only coded on the functional competency which they confer to their officer inhabitants, the coding for the field grades went into greater detail. After grouping the field-grade billets into common groups based on designated duty title and organizational context, RAND and Air Force personnel coded O4, O5, and O6 billets based on the functional competency set that an ideal officer should possess before filling the billet and the functional competency that the billet grants to an officer inhabiting the billet. While the initial coding of billet requirements simply identified the

⁷⁶ See Appendix B for a full breakout of the functional requirements and functional competencies granted by 38F field-grade authorizations.

⁷⁷ While this chapter focuses on meeting field grade requirements relative to specialist O6 billets requiring a depth of functional experience in one functional area, there are also several generalist O6 billets that require a breadth of functional experience. For the most part these generalist jobs' qualifications are met over 80% of the time in all of the modeled scenarios. It does not appear there is any tradeoff between their qualified fill rates and the specialized jobs' qualified fill rates.

functional competencies that an officer should have ideally been exposed to prior to occupying a given field-grade billet, RAND military manpower and personnel policy experts later quantified these requirements in terms of the ideal number of years that an officer should possess in a certain functional competency before being assigned to the billet. Appendix B details the functional competencies required and granted by the 38F field-grade billets at O4, O5, and O6.

After completing the initial effort in coding the 38F field-grade billets, Air Force personnel further qualified the ideal competency requirements demanded by a group of O6 billets that are charged with policy formulation related to different Force Support functional areas. Personnel at Headquarters Air Force, Manpower and Personnel Strategic Plans Division (HAF/A1XX) specified the deep competency requirements for these O6 billets across multiple organizational levels as described in Figure 5.1

**Figure 5.1
Specialized O6 Competency Requirements**

**2 years base level experience } Same functional area
4 years staff level experience }
2 years squadron command experience – any functional area**

For a colonel to meet all of the competency requirements for one of the specialized O6 billets charged with manpower policy formulation, he or she would need to have 2 years of manpower conferring assignments at the base level, 4 years of manpower conferring assignments at the staff level, and 2 years of squadron command experience in any functional area. The full list of these 21 specialized O6 billets and the functional areas for which they require depth across organizations is shown in Table 5.1.

Table 5.1
Specialized O6 Billets

Air Force Office Symbol	# of Positions	Functional Area Required
MAJCOM/A1M	3	Manpower
AFMA/CC	1	Manpower
AF/A1MP	1	Manpower
AF/A1MR	1	Manpower
MAJCOM/A1K	4	Personnel
AFPC/DPS	1	Personnel
AFPC/DPAP	1	Personnel
AFPC/DPAS	1	Personnel
AF/A1PP	1	Personnel
MAJCOM/A1S	3	Services
AFSVA/CC	1	Services
AFSVA/SVO	1	Services
AFSVA/SVP	1	Services
AF/A1SO	1	Services

One additional O6 billet was initially coded as requiring Force Support specialization. Functional competency requirements for this billet were coded consistent with the other specialized O6 billet competency requirements, but with respect to the Force Support functional competency. Simulation results indicated that this specialized requirement was fillable across multiple simulated scenarios, but several 38F relevant audiences later called into question the specialized Force Support requirements coded on this billet following the completion of the initial analysis. Several audience members suggested that the billet more appropriately required personnel specialization.⁷⁸ Additionally, the notion of Force Support itself reflects a generalized competency, and not one of specialized

⁷⁸ In this case, there would be 9 billets requiring specialized personnel experience, one more than presented in Table 5.1. As is later shown in this chapter, given the relative surplus of O6 personnel at all grades, it appears fairly easy to build officers with 2 years of base-level personnel experience and 4 years of staff-level personnel experience by the time they reach O6. Thus, an additional O6 billet requiring personnel specialization would not result in an unattainable requirement for the 38F career field nor change the overall conclusions of this analysis.

functional depth. As this feedback was received after the completion of the previously configured simulation analysis, specific results relative to this single billet are not presented.

The introduction of organization specific functional competency requirements for these 21 specialized O6 billets raised additional questions pertaining to the manner in which the authorization restructuring approach outlined in Chapter 3 should be conducted. Additional manpower and services billets are needed at O1/O2 given their current relative scarcity, but it is not immediately clear whether these billets should be allocated at the base or staff organizational level. At the same time, substantial numbers of billets need to be removed from the population of O3, O4, O5, and O6 authorizations. To explore the competency related implications of different policy approaches to restructuring and managing the Force Support career field the MCM was used to simulate cohorts of 38F officers from the time they enter the career field as O1s until they potentially progress to meet field-grade competency requirements.

5.2 THREE APPROACHES FOR CAREER FIELD SUSTAINABILITY

In order to use the MCM to simulate cohorts of officers flowing through the grades and acquiring competencies, the career field must first be restructured such that the average strength of personnel in each grade matches the number of billets that are allocated for that grade to fill. As shown in Chapter 3, reaching this sustainable structure will require removing 49, 68, 119 and 11 billets from the O3, O4, O5, and O6 billet populations, respectively. At the same time, one must add 247 billets to the O1/O2 billet population.

5.2.1 Removing O3, O4, O5, and O6 Billets

Examining the distribution of available functional and organizational experience in the current population of 38F billets shows the overall abundance of personnel and force support conferring

billets along with highlighting the scarcity of base-level manpower billets and services billets. Table 5.2 shows how many jobs occur in each functional area at the staff or base level within each grade. Only 19 of 1704 total billets, or 1.1% of the billets allow an officer to acquire manpower competency at the base level. Staff level services competency is also difficult for officers to acquire, with only 3.3% of the billets providing this opportunity. Base level services experience is also scarce, with 4.8% of the billets granting this competency. On the surface, the scarcity of these positions would seem to limit the production of fully qualified Colonels for the manpower and services-specialist billets at O6.

Table 5.2
Distribution of Functional-Organization Competencies Conferred in
Current 38F Billets

Functional-Org. Competency	01/02	03	04	05	06	Total
Manpower-Base	3	5	2	0	0	10
Manpower-Staff	6	17	39	32	7	101
Personnel-Base	82	164	6	8	0	260
Personnel-Staff	1	55	98	91	28	273
Services-Base	11	62	7	2	0	82
Services-Staff	0	13	13	21	9	56
Manpower & Personnel Base	0	0	9	0	0	9
Manpower & Personnel Staff	0	0	32	32	17	81
Force Support Base	19	50	48	80	1	198
Force Support Staff	2	27	19	21	16	85
Other	40	188	152	119	50	549
Total	164	581	425	406	128	1704

Whereas base level manpower billets and services billets appear scarce, personnel billets are abundant. Personnel billets at the base level represent 15.8% of the overall billets and personnel billets at the staff level represent 20.8% of the overall billets. Based on the relative abundance of billets conferring personnel competency, developing fully qualified colonels for the personnel-specialist O6 billets appears more assured compared to the manpower and services-specialist O6 billets. Force Support conferring billets are also relatively abundant across the billets.

To reach a sustainable grade structure, this analysis takes the approach of primarily eliminating some of the relatively overrepresented personnel and Force Support billets at O3, O4, O5, and O6. Table 5.2 also shows that there are large numbers of billets at each grade which grant competencies other than manpower, personnel, services, or Force Support. Tax jobs and executive officers are examples of some of the billets which fall in this category. It would be convenient to primarily eliminate these billet obligations from the 38F career field since they do not develop required 38F functional competencies, but these billets are generally viewed as necessary obligations which Force Support officers hold the responsibility of filling. Nevertheless, this analysis resorts to eliminating some of these types of billets when the duty titles respective to the overrepresented personnel and Force Support billets appear important to retain for officer development. For example, there are 101 Force-Support-conferring billets at the grade of O5, but 63 of these Force-Support-conferring billets are squadron command positions. Squadron command serves as an important O5 leadership opportunity and Air Force officers typically must inhabit such a position prior to advancing to higher ranks. In addition, the 38F community further considers squadron command experience as critical for developing functionally specialized colonels, and eliminating these billets would take away 64 of 73 total squadron command positions contained in the data. In this situation, a portion of the 119 other billets at O5 were eliminated to reach a sustainable authorization structure. Table 5.3 displays the billet reductions made at O3, O4, O5, and O6 to reach sustainability.

Table 5.3
Types of Functional-Organizational Conferring O3, O4, O5, and O6
Billets Removed to Reach Sustainability

Grades	Personnel Base	Personnel Staff	Force Support Base	Force Support Staff	Other	Total
O3	-49					-49
O4	-4	-36	-19	-9		-68
O5	-8	-40	-17	-19	-33	-119
O6					-11	-11
Total	-61	-76	-36	-28	-44	-248

5.2.2 Adding O1/O2 Billets

Beyond removing billets in the population of O3, O4, O5, and O6 authorizations, the 38F community must additionally add 247 O1/O2 billets to reach sustainability. This section adopts the same approach to functionally balancing the O1/O2 billet population as demonstrated in Chapter 4, but explores how the organizational allocation of these additional billets and assignment management policies impact the ability of 38F officers to meet field-grade competency requirements.

To rebalance the functional representation of O1/O2 billets and reach a sustainable number of billets as shown in Table 4.2, 83 manpower billets, 11 personnel billets, 81 services billets, and 72 force support billets were added to the population of O1/O2 billets. This allows for equal functional representation among the O1/O2 billet population, but one must additionally consider whether these billets should be added at the base or staff organizational level. Table 5.4 shows the three approaches used to allocate the additional O1/O2 billets along organizational lines.

Table 5.4
3 Approaches to Organizational Allocation of Additional 01/02 Billets

Functional-Org. Competency	Approach 1	Approach 2	Approach 3
Manpower-Base	83	0	42
Manpower-Staff	0	83	41
Personnel-Base	11	0	6
Personnel-Staff	0	11	5
Services-Base	81	0	41
Services-Staff	0	81	40
Force Support Base	72	0	36
Force Support Staff	0	72	36
Total	247	247	247

Approach 1 places all of the additional 01/02 billets at the base level. Approach 2 places all of the additional 01/02 billets at the staff level. Approach 3 roughly splits the additional 01/02 billets between the base level and the staff level.

If one views these different approaches to adding 01/02 billets in conjunction with the demonstrated method of removing 03, 04, 05, and 06 billets to reach sustainability, the combined result is three different overall examples of a sustainable 38F career field setup from 01 to 06.

5.3 EXPLORATORY ANALYSIS OF THREE CAREER FIELD SUSTAINABILITY APPROACHES

The MCM simulates 38F officers moving up the grades from 01 to 06 and acquiring competencies in different billets. Two primary outcome measures indicated competency development issues in the different sustainability approaches: 1. Overall % of instances when FGO billets were filled by fully qualified officers over a simulated 25 year steady state period and 2. Overall % of instances when specialized 06 billets were filled by fully qualified officers over a simulated 25 year steady state period.⁷⁹ The MCM seeks to place a fully qualified officer in

⁷⁹ In this context, steady state refers to the stable number of officers that populate each grade in the simulation following an

billets with competency requirements, but will place an unqualified officer in a billet if no qualified officers are available. Simulation runs in which unqualified officers are frequently placed in billets indicate shortcomings in competency development opportunities or inefficiencies in the assignment process and provide informed guidance on best practices for managing the 38F career field.

5.3.1 Baseline Exploratory Analysis

This exploratory analysis looks at general approaches that yield more advantageous results while restructuring a sustainable 38F career field so that more officers are developed to fill specialist O6 billet requirements. While these specialist O6 billets require 2 years squadron command experience in addition to 6 years of experience in a specific functional area, this analysis focuses on the shortcomings in the current functional representation of 38F billets which make it difficult for officers to gain 2 years of base level experience and 4 years of staff level experience in the same functional area. In general, the 73 squadron command billet authorizations currently at O4 and O5 provide more than enough opportunity for 38F officers to gain 2 years of squadron command experience and therefore do not limit the development of fully qualified O6 officers to meet specialist O6 billet requirements.⁸⁰

Table 5.5 shows the different approaches towards adding O1/O2 billets and the outcome measures used to evaluate these approaches. Congruent with 38F leadership's developmental vision, simulation CGO assignment management was configured for maximal CGO breadth development with CGO assignments fixed at 2 years in length, while the FGO assignment management policy seeks to fill billets with an

initial burn-in period when the simulation is first populated with officers. While the total number of officers that populate each grade in the simulation is not completely unvarying, the total does not deviate drastically from the average in any given time step.

⁸⁰ Assignment business rules were enacted in the simulation to prevent the same officer from repeating a squadron command assignment.

available officer fully qualified that meets billet requirements. Additional assignment rules are specified which disallow a given field-grade officer from repeating a 2 year squadron command assignment and preferentially seek to prevent a specific officer from garnering repeated assignments to the same specialized O6 billet.

Table 5.5
3 Approaches to Organizational Allocation of Additional O1/O2 Billets

Functional-Org. Competency	Approach 1	Approach 2	Approach 3
Manpower-Base	83	0	42
Manpower-Staff	0	83	41
Personnel-Base	11	0	6
Personnel-Staff	0	11	5
Services-Base	81	0	41
Services-Staff	0	81	40
Force Support Base	72	0	36
Force Support Staff	0	72	36
Total	247	247	247
Qualified Fill Rates	% Fully Met	% Fully Met	% Fully Met
All FGO Billets	97.8	95.4	98.0
O6 Manpower Specialist (6)	89.6	20.0	76.5
O6 Personnel Specialist (8)	91.9	80.9	93.7
O6 Services Specialist (7)	35.2	16.1	35.3

Examining the outcome measures in Table 5.5 provides some indicators of relatively more beneficial approaches to take in restructuring the Force Support authorizations. The "All FGO Billets" competency development measure shows that all of the approaches taken towards reaching sustainability via additional O1/O2 billets yield similar aggregate results with over 95% of the officers placed in field-grade billets fully meeting the specific competency requirements of all field-grade billets. While the aggregate results paint a similar picture for each approach towards adding O1/O2 billets, taking a more specific look at the specialized O6 billets provides additional insights into whether specialized functional depth is adequately developed in the different career field restructuring approaches.

The 8 personnel-specialist billets are consistently filled at a high rate across each of the three different approaches to adding O1/O2 billets, indicating that the base of personnel-related billets in the

reconfigured, sustainable Force Support authorization structure provide enough opportunities for development of personnel expertise. Each simulated approach used a reconfigured, sustainable grade structure characterized by a net decrease of total personnel related billets compared to the current population of 38F billets, but these changes do not seem to negatively impact deep personnel development.⁸¹

While the three approaches to the organizational allocation of the added O1/O2 billets do not seem to significantly affect deep personnel development, looking at the fill rates associated with the manpower O6 billets communicates a different story. Approach 1 and Approach 3 yield much higher qualified fill rates respective to the manpower-specialist billets in comparison to Approach 2. The common link between Approach 1 and Approach 3 is that both approaches add some quantity of base level manpower billets to the O1/O2 billet population. In contrast, all of the added O1/O2 manpower billets in Approach 2 are placed at the staff level. These results suggest that the 38F career field needs more base-level manpower billets in order to adequately develop enough officers qualified with a deep manpower competency set.

The pattern of changes in the qualified fill rates respective to the specialized services O6 billets appears to match the pattern of changes in the qualified fill rates respective to the specialized manpower O6 billets. Approach 1 and Approach 3, which both add some quantity of base level services billets, double the instances in which fully qualified officers fill the specialized services O6 billets when compared to Approach 2, in which all of the additional O1/O2 billets are added at the staff level. While this would seem to suggest that additional base-level services billets are needed to develop more officers with the set of competencies required by the services-specialist billets, one must more comprehensively consider how a breadth-building CGO assignment management policy may inhibit the

⁸¹ To reach sustainability, a total of 61 personnel base and 76 personnel staff billets were removed from the O3, O4, and O5 authorization population. In each of the approaches to adding 247 billets to O1/O2, only 11 personnel related billets are added.

development of colonels with 2 years of base level services experience and 4 years of staff-level services experience.

5.3.2 CGO Breadth Development Limits Services Specialist Development

To understand how a company-grade assignment policy which seeks to promote the development of breadth also limits the development of officers fully qualified to fill the O6 specialist-services billets, it will be helpful to examine the distribution of services billets among the grades prior to any proposed reconfiguration changes to reach a sustainable structure.

**Table 5.6
Original Grade Distribution of Services Conferring 38F Billets**

Functional-Org. Competency	01/02	03	04	05	06	Total
Services-Base	11	62	7	2	0	82
Services-Staff	0	13	13	21	9	56

Of the 82 base-level services billets, 73 of them reside in the company grades. The distribution of the staff-level services billets is reversed, as 43 of the 56 staff level services billets reside in the field grades.

When large quantities of services staff billets are added to the population of 01/02 billets in conjunction with an overall 01/02 billet increase to establish sustainability, the benefit of these additional staff level services billets in creating more officers qualified to serve in a services-specialist billet will be mitigated by a company-grade assignment management policy which promotes the development of functional breadth. The distribution of services billets under the 2nd Approach to adding 01/02 billets is shown below in Table 5.7.

Table 5.7
Post Approach 2 Grade Distribution of Services Conferring 38F Billets

Functional-Org. Competency	01/02	03	04	05	06	Total
Services-Base	11	62	7	2	0	82
Services-Staff	81	13	13	21	9	56

Under Approach 2, 81 staff level services positions are added to the current population of 01/02 authorizations. Newly accessed 38F officers can fill a staff level services billet for 2 years, thereby gaining 2 years of staff level services competency. Up to 40 01/02 officers can enter into a 2-year staff-level services assignment on an annual basis. Upon completion of this services assignment, officers will then be preferentially vectored for functional breadth during the remainder of their time in the company grades, garnering non-services assignments. As these officers garner non-services assignments for the remainder of their time in the company grades, they will not be able to receive a base-level services assignment. Unfortunately, with 89% of base level services billets authorized for company-grade officers, not many officers can be given base-level services assignments in the field grades. Thus, under approach 2, many simulated officers garner 2 years of staff-level services experience at 01/02, and miss out on the bulk of services base assignments at 03. As these officers enter the field grades with only 2 years of staff-level services experience, they still require 2 more years of staff-level services experience and 2 years of base-level services experience in order to fully develop the functional component required by the 06 services-specialist billets. With only 9 base level services assignments and 34 services staff level assignments in the field grades, very few officers will fully develop this portfolio of experiences, resulting in the specialist 06 billets only being filled by fully qualified officers 16.1% of the time.

In the 1st Approach to adding additional 01/02 billets, all of the services billets are added at the base level. This is shown in Table 5.8.

Table 5.8
Post Approach 1 Grade Distribution of Services Conferring 38F Billets

Functional-Org. Competency	01/02	03	04	05	06	Total
Services-Base	92	62	7	2	0	82
Services-Staff	0	13	13	21	9	56

In this approach, a large quantity of simulated officers will garner 2 years of base-level services experience during the company grades. They will not garner any more services assignments during the company grades under a policy which seeks to promote the development of breadth. For those officers who advance into the field grades, there are only 13 04 assignments and 21 05 assignments conferring staff-level services experience. As such, only a few of those officers who gained 2 years of base-level services experience during the company grades will be able to gain 4 years of staff-level services experience during the field grades to fully develop their depth of services experience. Thus, the qualified fill rates for the deep 06 services billets remained low at 35% for Approach 1.

The low qualified fill rates for Approach 3, in which both base level and staff-level services billets are added to the population of 01/02 billets result from a combination of the factors driving the low qualified fill rates in Approach 1 and Approach 2. Those officers garnering 2 years of staff-level services experience during the company grades have very little chances of obtaining 2 years of base-level services experience and an additional 2 years of staff-level services during the field grades. Those officers who garner 2 years of base-level services experience during the company grades have little chance of garnering 4 years of staff-level services experience during the field grades. Either way, a breadth building policy during the company grades limits the number of simulated officers who acquire of 2 years of base-level services experience and 4 years of staff-level services experience before becoming eligible to fill 06 billets.

After considering these limitations in building services depth, an alternative company-grade assignment policy was explored using the MCM. The original breadth building company-grade assignment policy

prevented officers from being assigned to a services-related assignment if they previously held a services-related assignment. This assignment policy was altered to allow for a given CGO to inhabit multiple services assignments in the company grades as long as they occur at different organizational levels. The setup thus allows a CGO to inhabit a base-level services assignment if their previous services experience occurred at the staff level and vice versa. By permitting an officer to occupy multiple services assignments across different organizational levels in the company grades, this company-grade assignment policy allows for, but does not actively promote, the development of services depth in some officers during their company-grade tenure.

Table 5.9 shows the resultant qualified fill rates for the O6 specialized billets under the same previously adopted approaches to adding additional O1/O2 billets but for when the simulation configured company-grade assignment policy allows development of services depth. The simulation assignment management policies governing manpower and personnel remained the same as previously configured, with the simulation preferentially seeking to fill those company-grade billets with officers lacking manpower and personnel competency, respectively.

Table 5.9
3 Approaches to Organizational Allocation of Additional O1/O2 Billets

Functional-Org. Competency	Approach 1	Approach 2	Approach 3
Manpower-Base	83	0	42
Manpower-Staff	0	83	41
Personnel-Base	11	0	6
Personnel-Staff	0	11	5
Services-Base	81	0	41
Services-Staff	0	81	40
Force Support Base	72	0	36
Force Support Staff	0	72	36
Total	247	247	247
Qualified Fill Rates	% Fully Met	% Fully Met	% Fully Met
All FGO Billets	97.9	97.1	98.4
O6 Manpower Specialist (6)	83.1	31.5	83.9
O6 Personnel Specialist (8)	91.8	91.5	95.0
O6 Services Specialist (7)	40.0	50.4	52.3

The qualified fill rates displayed in Table 5.9 for the O6 services-specialist billets under this assignment management policy are indeed higher when compared to the qualified fill rates for the O6 services-specialist billets under the previous assignment management policy displayed in Table 5.5. In this revised assignment management policy which allows for the development of services depth during the company grades, the qualified fill rates for the O6 services-specialist billets under Approach 1, 2, and 3 are 40%, 50.4%, and 52.3%, respectively. Under the previously employed assignment management policy, the simulation yields O6 services-specialist qualified fill rates of 35.2%, 16.1%, and 35.3% under Approach 1, 2, and 3 of adding O1/O2 billets, respectively. Thus, it appears that allowing for the development of services depth yields more O6 officers qualified with 2 years of base-level services experience and 4 years of staff-level services experience.

Interestingly, the pattern of improvements in the qualified fill rates respective to the O6 services-specialist billets also seem to change with this different CGO assignment management policy. Under the original CGO assignment management policy, adding services base billets appeared to be the common beneficial link between the higher qualified fill rates demonstrated under Approach 1 and Approach 3 to adding O1/O2 billets. In allowing for the development of services company-grade depth, it now appears that adding staff-level services billets yields greater increases in the services-specialist qualified fill rates, as this is the common link between the higher O6 services-specialist qualified fill rates displayed in Approach 2 and Approach 3 when compared to those in Approach 1.

One inherent tradeoff of this company-grade assignment management approach which allows for the development of services depth during the company grades is that it does not allow for as much breadth development as the previously employed company-grade assignment policy which disallows company-grade services depth development. By permitting the development of company-grade services depth, on average, 42.1% of entering field-grade officers will have at least 2 years of prior experience in manpower, personnel, and services. In the

simulated company-grade assignment management policy which disallowed the development of services depth during the company grades, on average, 48.9% of entering field-grade officers will have at least 2 years of prior experience in manpower, personnel, and services. Thus, in order to increase the number of officers fully qualified to serve in the O6 services-specialist billets, it appears that adopting a company-grade assignment policy which allows for services depth development may be necessary. As such, this company-grade assignment management policy is specifically employed for the remainder of the presented analysis results.

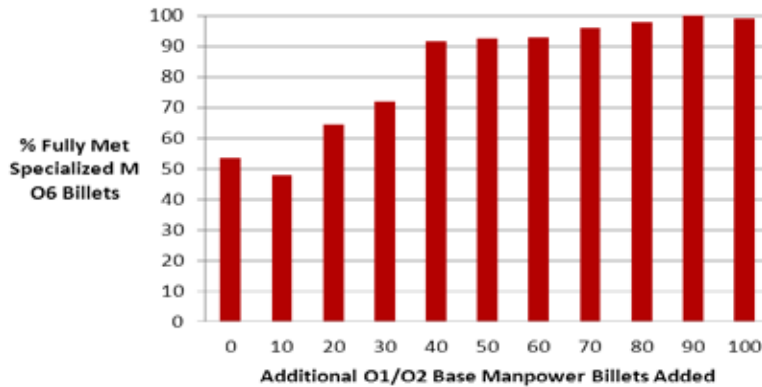
5.3.3 Quantifying the Benefit of Adding O1/O2 Base Level Manpower Jobs

The conducted exploratory analysis demonstrated that adding base-level manpower billets to the population of O1/O2 billets greatly increases the qualified fill rates respective to the O6 manpower-specialist billets. Approaches to adding O1/O2 billets which include the addition of large numbers of manpower base-level billets significantly increase the number of officers who garner manpower depth, but it is not clear the minimum number of base-level manpower billets which should be added to yield sizeable improvements. For example, in Approach 1, the addition of 83 O1/O2 base-level manpower billets results in the O6 manpower-specialist billets being filled by fully qualified officers 83.1% of the time. In Approach 3, the addition of 42 base-level manpower billets and 41 staff-level manpower billets to the O1/O2 billet population, results in manpower-specialist O6 billets being filled by fully qualified officers 83.9% of the time.

The MCM provided the means to roughly determine the minimum number of base-level manpower billets necessary to yield significant improvements in the qualified fill rates of the manpower-specialist O6 billets. A simulation setup in which all of the additional 247 O1/O2 billets were configured as base-level personnel billets served as a baseline comparison to alternative career field configurations in which base-level manpower billets were iteratively added to the population of O1/O2 billets in quantities of 10 and the additional base level

personnel billets are reduced in equivalent quantities. The results of this exercise are displayed in Figure 5.2.⁸²

Figure 5.2
Iterative Addition of O1/O2 Base Level Manpower Billets



As base-level manpower billets are almost nonexistent in the current population of 38F billets, adding these types of positions to the O1/O2 billet population greatly increases the opportunity for 38F officers to accumulate 2 years of base-level manpower experience during the company grades, later accumulate 4 years of staff-level manpower experience during the field grades, and thus fulfill the manpower - specialist O6 billet requirements. The addition of 40 base-level manpower billets results in qualified fill rates for the O6 manpower-specialist billets near 90%. Further increases in the quantity of base-level manpower billets beyond 40 demonstrate diminishing marginal returns in the qualified fill rates respective to the manpower-specialist O6 billets.

One should note that while the qualified fill rates respective to the manpower-specialist O6 billets display an upward trend as greater numbers of base level manpower billets are added to the O1/O2 billet

⁸² The results displayed in Figure 5.2 are derived from a single simulation run of each career field configuration in which 10 additional base-level manpower billets are added to the population of O1/O2 authorizations. Appendix D displays results in which the MCM was used to conduct multiple runs with different seeds to the pseudo-random number generator for each iterative career field configuration.

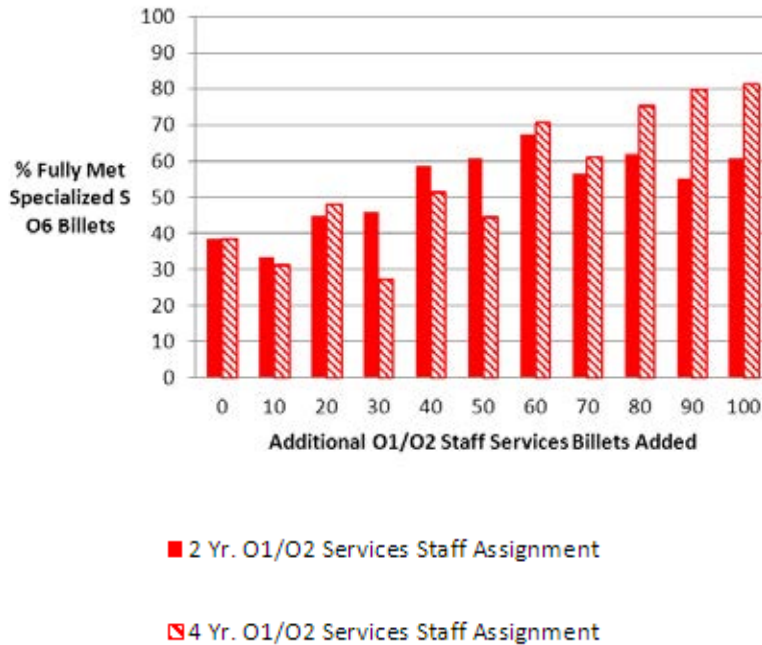
population, the relationship between these two quantities is not linear. Even while overall retention patterns remain fixed for each of these simulation runs, specific subsets of officers within a given cohort will display different retention patterns. For example, with the general scarcity of base-level manpower billets in the current population of 38F authorizations, only a few officers in a given cohort will obtain base-level manpower experience during the company grades. If large numbers of these officers in a given cohort separate from the Air Force before reaching O6, then the qualified fill rates respective to the manpower-specialist billets will be lower compared to an outcome in which the majority of these officers possessing company-grade-base-level manpower experience retain through the field grades and advance to O6. While the fully qualified fill rates for the specialist O6 billets are calculated from a simulated 25 year steady state period in which multiple cohorts flow from O1 to O6, the average tendency for officers possessing company-grade manpower experience to separate before reaching O6 may still vary across different simulated 25 year periods and the effects of these possible differential average retention patterns will be more pronounced when there is a limited opportunity for gaining company-grade manpower experience. As the opportunities for acquiring company-grade manpower experience increase, however, greater numbers of officers acquire 2 years of base-level manpower experience in the company grades, and even if a large proportion of these officers separate before reaching the company grades, there will still be enough officers remaining who have supplemented their 2 year base-level manpower experience in the company grades with 4 years of staff-level manpower experience in the field grades to keep qualified fill rates for O6 manpower-specialist billets high.

5.3.4 Quantifying the Benefit of Adding O1/O2 Staff Level Services Jobs

As the results of the exploratory analysis also indicated that additional O1/O2 staff-level services billets will increase the

qualified fill rates respective to the services-specialist O6 billets, an identical iterative exercise was conducted where staff-level services billets were added in quantities of 10 to the population of O1/O2 billets, gradually replacing equivalent quantities of additional O1/O2 base-level personnel billets. For each career field configuration with additional O1/O2 staff-level services billets, the simulation was run with the company-grade assignment management settings which permit development of services depth. The results of this exercise are displayed in Figure 5.3.⁸³

Figure 5.3
Iterative Addition of O1/O2 Staff Level Services Billets



Adding staff-level services billets to the population of O1/O2 billets yields improvements to the qualified fill rates respective to

⁸³ The results displayed in Figure 5.3 are derived from a single simulation run of each career field configuration in which 10 additional staff-level services billets are added to the population of O1/O2 authorizations. Appendix D displays results in which the MCM was used to conduct multiple runs with different seeds to the pseudo-random number generator for each run.

the O6 services-specialist billets, but not the same extent as additional base-level manpower billets improve the qualified fill rates of the O6 manpower-specialist billets. There are several reasons for this. For specialist O6 billets, the requirement for staff-level functional experience stands at 4 years, while the requirement for base-level functional experience stands at 2 years. With a company-grade assignment management policy allowing development of services depth in the company grades with 2 year assignments, the most services experience an officer will possess upon entrance to the field grades is 2 years at the base level and 2 years at the staff level. To fully meet O6 services-specialist billet requirements, such an officer will need to garner another staff-level services assignment during their time in the field grades. The majority of FGO billets which confer staff-level services experience also have functional prerequisites for prior services experience, so the MCM will preferentially route officers with prior company-grade services experience to these jobs, but unfortunately, the results indicate there are simply not enough FGO billets conferring staff-level services experience to consistently sustain high qualified fill rates in the O6 services-specialist billets.

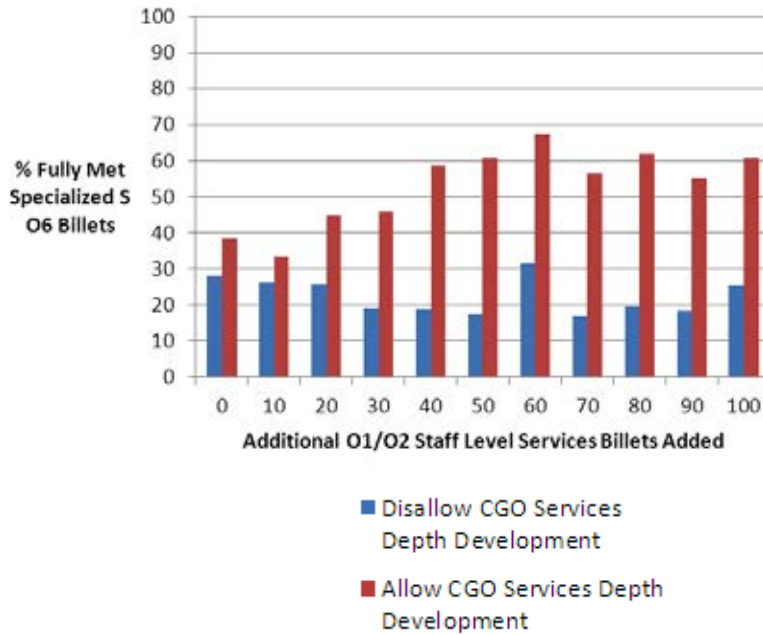
Figure 5.3 also displays the results of an alternative company-grade assignment policy allowing for a 4 year staff-level services assignment at O1/O2. The length of other company-grade assignments remained fixed at 2 years. With this longer permitted assignment length to staff-level services jobs, some officers will gain 4 years of staff-level services experience at O1/O2 and then gain 2 years of base-level services experience at O3, entering the field grades fully functionally qualified to serve in an O6 services-specialist billet. One drawback of this approach is that half as many officers will be able to gain staff-level services exposure when the staff level services assignment length is doubled from 2 to 4 years. If these small number of company-grade officers who gain 4 years of staff-level services experience separate from the Air Force at differential rates before reaching O6, there will be variation in the O6 services-specialist qualified fill rates. As small quantities of O1/O2 staff-level services billets are

iteratively added, Figure 5.3 displays a significant degree of noise in the resultant O6 staff-level services qualified fill rates. This noise seems to abate once upwards of 80 O1/O2 staff level services billets are added as enough officers functionally qualified with services depth consistently advance to O6.

While the developmental benefit of additional O1/O2 staff-level services billets is not as immediate as the developmental benefit evidenced by adding base-level manpower billets to O1/O2 authorizations, Figure 5.3 nevertheless illustrates the upward trend in O6 services-specialist qualified fill rates with the addition of O1/O2 staff-level services billets. Large quantities of additional O1/O2 staff-level services billets result in higher O6 services-specialist qualified fill rates.

The results displayed in Figure 5.4 further demonstrate the impact of allowing the development of services depth during the company grades. For iterative model runs in which staff-level services billets were added in quantities of 10 to the population of O1/O2 billets to replace equivalent numbers of added O1/O2 base-level personnel billets, the simulation was run under two different company-grade assignment management policies. The first assignment policy is the breadth promoting assignment policy which does not allow an officer to repeat a services conferring assignments in the company grades, while the second assignment policy is the one previously employed in Figure 5.3 allowing company-grade services depth development. All CGO assignments were configured for 2 years in length in both runs.

Figure 5.4
Impact of Disallowing Services Depth Development



Even if large numbers of additional staff-level services billets are placed in the O1/O2 billet population, no benefit will be realized if the 38F community does not allow for the development of services depth during the company grades.

5.3.5 Benefit of Simultaneously Adding O1/O2 Base Level Manpower and Staff Level Services Billets

The previous two sections separately demonstrated that additional O1/O2 base-level manpower billets and additional O1/O2 staff-level services billets improve the qualified fill rates respective to O6 manpower-specialist billets and O6 services-specialist billets, respectively. Another set of simulation runs was configured to explore the impact of simultaneously adding base-level manpower billets and staff-level services billets to the population of O1/O2 billets. The simulation runs were configured with fixed 2 year company-grade assignments allowing for services depth development in the company

grades. The results for these simulation runs are displayed in Table 5.10.

Table 5.10
Adding 01/02 Base Level Manpower and Staff Level Services Billets

Functional-Org. Competency	Approach 1	Approach 2	Approach 3
Manpower-Base	20	41	82
Manpower-Staff	0	0	0
Personnel-Base	207	165	83
Personnel-Staff	0	0	0
Services-Base	0	0	0
Services-Staff	20	41	82
Force Support Base	0	0	0
Force Support Staff	0	0	0
Total	247	247	247
Qualified Fill Rates	% Fully Met	% Fully Met	% Fully Met
All FGO Billets	97.2	96.9	98.5
06 Manpower Specialist (6)	72.4	89.9	91.0
06 Personnel Specialist (8)	93.9	89.9	91.0
06 Services Specialist (7)	45.4	43.0	61.8

The simultaneous addition of base-level manpower billets and staff-level services billets tells a similar story as when these types of billets are separately added to the 01/02 billet population. Adding base-level manpower billets appears to be a sufficient approach to improving 06 manpower-specialist qualified fill rates. Forty additional base-level manpower billets result in the manpower-specialist billets being filled by fully qualified personnel near 90% of the time and little additional improvement in the qualified fill rates is seen beyond adding these 40 manpower base-level billets.

As when staff-level services billets are singularly added to the 01/02 billet population, the addition of staff-level services billets in conjunction with base-level manpower billets demonstrates similar effects upon the 06 services-specialist billets. With 82 additional services staff billets allocated for 01/02 38F officers, the 06 services -specialist billets are still only filled by fully qualified officers 61.8% of the time. This is an improvement, but not to the same extent as additional 01/02 manpower base-level billets improve 06 manpower-specialist billet fill rates.

5.3.6 Adding Staff Level Services Billets Above O1/O2

The placement of additional O1/O2 staff-level services billets in the population of O1/O2 billets improves the qualified fill rates respective to the O6 services-specialist billets, but it may be more appropriate to increase staff-level services billets at other grades above O1/O2. Staff-level billets usually entail decision making responsibilities which require a broader organizational perspective and general situational awareness of current Force Support issues, and it may be difficult to expect a newly commissioned lieutenant to immediately assume an active leadership role in this capacity. Officers who have accumulated prior 38F competencies, experiences, and responsibilities in past assignments may thus be more suitable candidates for staff-level jobs.

Another drawback of placing a large quantity of staff-level services billets at O1/O2 is the large period of time that exists between when an officer occupies this role as a lieutenant and when they potentially retain and promote to O6. Typical officer retention patterns show a high degree of voluntary separation in company-grade years, as many officers leave the Air Force after fulfilling their initial 5 year commitments. With these retention patterns, a significant proportion of those officers who garnered an O1/O2 staff-level services assignment will voluntarily leave the Air Force, cutting down on the number of officers who advance to O6 with this experience.

Given these drawbacks in adding staff-level services billets to the O1/O2 billet population, two alternative policies of increasing staff-level services billets outside of the O1/O2 authorization population were explored via the MCM. Both of these approaches require additional changes in the structure of the 38F career field beyond the necessary changes to the authorization structure to first reach sustainability. These approaches also entail deliberately managing those officers with services experience to a greater extent.

The first approach to adding staff-level services billets above O1/O2 entails converting the 62 O3 base-level services billets to staff-level services billets, increasing the current O3 staff-level

services billets from 13 to 75. To replace the base-level services role removed from the O3 authorizations, 62 base-level services billets are among the 247 billets added to the O1/O2 authorization population in the sustainability restructuring effort. The redistributed state of the services billets is displayed in Table 5.11.

Table 5.11
Approach 1: Convert O3 Services Base to Services Staff, Add Services Base to O1/O2 Authorizations

Functional-Org. Competency	O1/O2	O3	O4	O5	O6	Total
Services-Base	73	0	7	2	0	82
Services-Staff	0	75	13	21	9	56

This distribution of services billets creates a developmental setup in which 38F company-grade officers can garner a base-level services assignment as newly accessed lieutenants and then serve in a staff-level services assignment later on in their company-grade tenure at the rank of captain. While all company-grade billets in this analysis were viewed primarily as learning opportunities with no functional prerequisites, this services authorization structure allows for a logical progression in which O3 officers with a prior O1/O2 base-level services assignment can draw upon their experiences in day-to-day base-level services operations to play a more informed, active role if assigned to a staff-level services job.

Simulated officers flowed through this reconfigured grade structure in the MCM. In the simulation, additional company-grade assignment management rules were configured to actively promote the development of services depth during the company grades. Whereas the previously employed company-grade assignment rules merely permitted some services depth development by allowing an officer to occupy a second services assignment if it occurred at a different organizational level than the officer's first services assignment, the preferential assignment management rules governing the O3 staff-level services billets were changed so that an officer possessing 2 years of prior base-level services experience would be the most suitable job

candidate. In this setup, the simulation promotes the development of services depth by deliberately seeking to route officers to an O3 staff-level services assignment if they garnered base level services experience as a lieutenant.

The simulation results of this approach are shown in Table 5.12. In addition to showing the 62 base-level services billets added to the population of O1/O2 authorizations, the table displays the other types of added O1/O2 billets used to reach sustainability. The two columns containing qualified fill rate results in Table 5.12 correspond to two slightly different variations on company-grade assignment lengths within the same authorization structure. The results in the first column reflect a company-grade developmental track where all of the company-grade assignment lengths are fixed at 2 years. With fixed 2 year assignment lengths, some officers entering the field grades will have at most 2 years of base-level services experience and 2 years of staff-level services experience. These officers will still need another 2 years of staff-level services experience in order to fully develop the services depth requirements specified by the O6 services-specialist billets.

The second column displays the qualified fill rate results for the exact same career field configuration, but with a change in the length of O3 staff-level services assignments from 2 years to 4 years. Officers who go to an O3 staff level services assignment will stay there for 4 years as long as they do not voluntarily separate during the assignment. This change in the length of O3 staff level services assignments results in a percentage of each entering field-grade cohort possessing 2 years of base-level services experience and 4 years of staff-level services experience. These officers will not need to garner any more services assignments in the field grades to be fully qualified to serve in a O6 services-specialist billet.

**Table 5.12
Qualified Fill Rate Results in First Approach to Adding Services Staff
Billets Above O1/O2**

Functional-Org. Competency	2 Year O3 Services Staff Assignment	4 Year O3 Services Staff Assignment
Manpower-Base	62	62
Manpower-Staff	0	0
Personnel-Base	62	62
Personnel-Staff	0	0
Services-Base	62	62
Services-Staff	0	0
Force Support Base	61	61
Force Support Staff	0	0
Total	247	247
Qualified Fill Rates	% Fully Met	% Fully Met
All FGO Billets	97.8	97.3
O6 Manpower Specialist (6)	92.3	85.3
O6 Personnel Specialist (8)	89.2	90.7
O6 Services Specialist (7)	62.5	95.1

Employing a company-grade assignment management policy which seeks to deliberately develop services depth in some officers appears to be a good approach towards ensuring that more officers possess the necessary competencies to fully qualify for an O6 services-specialist billet. With few opportunities for staff-level services development in the field grades, a developmental framework which seeks to have some officers enter the field grades with 2 years of base-level services experience and 4 years of staff-level services experience assures significantly more personnel fully qualified to fill O6 services-specialist billets.

The second approach to adding staff-level services billets above O1/O2 entails placing additional staff-level services billets in the population of O3 and O4 billets. After restoring sustainability, additional personnel and Force-Support-conferring billets were removed from the population of O3 and O4 authorizations and replaced with an equivalent amount of staff-level services billets. In actual implementation, these changes could potentially be made using offsetting military-to-civilian and civilian-to-military conversions between the different functional and organizational levels. The

assignment settings in the simulation of this approach reflect more deliberate management of those officers possessing base-level services experience from their time as a lieutenant. Officers possessing base-level services experience are more suitable candidates for the staff-level services jobs in the simulation. The benefits associated with this approach are shown in Table 5.13. Each scenario adds the same type of O1/O2 billets to the simulation, while the columns illustrate the results for different quantities of additional staff-level services billets substituted into the O3 and O4 billet population.

Table 5.13
Qualified Fill Rate Results in Second Approach to Adding Services Staff Billets Above O1/O2

Functional-Org. Competency	Baseline	Add 20 Staff Services Billets	Add 30 Staff Services Billets	Add 40 Staff Services Billets
Manpower-Base	61	61	61	61
Manpower-Staff	0	0	0	0
Personnel-Base	61	61	61	61
Personnel-Staff	0	0	0	0
Services-Base	61	61	61	61
Services-Staff	0	0	0	0
Force Support Base	64	64	64	64
Force Support Staff	0	0	0	0
Total	247	247	247	247
Qualified Fill Rates	% Fully Met	% Fully Met	% Fully Met	% Fully Met
All FGO Billets	98.1	97.6	98.9	98.5
O6 Manpower Specialist	93.5	87.8	91.7	90.4
O6 Personnel Specialist	91.9	87.7	90.8	80.7
O6 Services Specialist	52.4	63.5	87.5	92.7

Note: In the authorization configurations where additional staff level services billets are added to the O3 and O4 billet population, the additional staff services billets are split evenly between O3 and O4. With 20 additional staff level services billets, 10 are placed at O3 and 10 are placed at O4.

The results displayed in Table 5.13 demonstrate considerable improvement in the qualified fill rates of the O6 services-specialist billets as more staff-level services billets are added to the population of O3 and O4 authorizations. When 15 additional staff-level

services billets are added in each of the O3 and O4 authorization populations and the assignment management system deliberately directs some officers to develop services depth, the service-specialist billets are filled with qualified officers close to 90% of the time.

5.3.7 Underlying Importance of Deliberate Assignments

Regardless of the approach adopted towards restructuring the Force Support career field, competency gaps between the functional prerequisites associated with a given billet and the functional experiences supplied by an officer inhabiting that billet will continue to exist if the 38F assignments are not managed in a deliberate manner. In order to roughly duplicate the simulation assignment management practice of seeking to assign the most qualified officer to fill a billet opening, the 38F community needs to track billet functional requirements and also track the current supply of functional competencies its population of officers provides. With this information, informed assignment decisions can be made to best meet billet requirements. The consequence of not embracing such a framework will be the frequent placement of 38F officers placed in jobs that they are not functionally qualified to fill.

To demonstrate the likely shortcomings of a general career field management approach which does not place a high priority on tracking billet functional competency demands and personnel functional competency supply, the simulation was configured with a different assignment management setting. Rather than seeking to fill an open billet with the most qualified officer available for reassignment, the assignment management process simply filled billets by randomly selecting an officer from the body of officers available for reassignment at a given time.

Table 5.14 contains simulation results which illustrate the negative effect upon field-grade qualified fill rates of not employing a deliberate assignment management policy. The previous three approaches of adding O1/O2 billets are included to show the consistency of this effect across different career field configuration scenarios.

**Table 5.14
Deliberate vs. Random Assignment Under 3 Additional 01/02 Billet
Approaches**

Functional-Org. Competency	Approach 1	Approach 2	Approach 3
Manpower-Base	83	0	42
Manpower-Staff	0	83	41
Personnel-Base	11	0	6
Personnel-Staff	0	11	5
Services-Base	81	0	41
Services-Staff	0	81	40
Force Support Base	72	0	36
Force Support Staff	0	72	36
Total	247	247	247
Qualified Fill Rates-Deliberate	% Fully Met	% Fully Met	% Fully Met
All FGO Billets	97.8	95.4	98.0
06 Manpower Specialist (6)	89.6	20.0	76.5
06 Personnel Specialist (8)	91.9	80.9	93.7
06 Services Specialist (7)	35.2	16.1	35.3
Qualified Fill Rates-Random	% Fully Met	% Fully Met	% Fully Met
All FGO Billets	66.9	66.8	66.4
06 Manpower Specialist (6)	11.6	1.1	2.2
06 Personnel Specialist (8)	20.1	32.9	25.0
06 Services Specialist (7)	1.8	2.7	1.0

When a deliberate assignment management process is utilized, billet functional requirements are met nearly 100% of the time. If the simulation is run such that assignment decisions are made by selecting a random officer who is available for reassignment, the resulting consequence is that billets will be occupied with a functionally unqualified officer around a third of the time. To avoid such an outcome, the 38F career field should adopt a more deliberate method of tracking officer's accumulated functional competencies and making assignment decisions based on these functional competencies.

6. CONCLUSIONS AND RECOMMENDATIONS

In this final chapter, I summarize key research findings and their associated policy implications. I further suggest next steps that can be taken regarding the specific implementation of the general recommendations contained in this report.

6.1 CONCLUSIONS AND POLICY IMPLICATIONS

This work provides guidance on moving the 38F career field towards a sustainable authorization structure while simultaneously highlighting which approaches to this sustainable restructuring effort will ensure that O6 requirements for functional depth are met. To first move to a sustainable structure, more O1/O2 authorizations are needed, while fewer O3, O4, O5, and O6 authorizations are needed.

In moving to this sustainable grade structure, the 38F community should seek to generate more base-level manpower billets and more staff-level services billets in its population of authorizations. Forty additional base-level manpower billets at the O1/O2 level provide enough opportunity for officers to develop manpower depth before becoming eligible to serve in O6 billets requiring deep manpower experience. Adding large numbers of staff-level services billets to the O1/O2 authorizations also improves respective services-specialist O6 billets, but staff-level services billets should ideally be allocated above the grade of O1/O2 and some 38F officers should be deliberately tracked to occupy one of these billets if they possess prior base level services experience. If large quantities of staff-level services billets are added to the company grades, some 38F officers will thus need to be deliberately routed for development of services depth during their company-grade time. Building company-grade depth in services will work slightly against the 38F community's stated objective of building functional breadth during the company grades, but the result is more qualified officers to meet billet functional demands. Adopting these approaches will result in more fully

functionally qualified officers available to fill O6 billets requiring functional depth.

Realizing the results demonstrated in this dissertation is dependent upon the employment of an assignment policy capable of discerning the functional qualifications of officers available for reassignment and then placing qualified officers in an open billet. In order to execute such an assignment policy, 38F career field management must have some means of determining the specific past experiences and training of officers currently in the force. To do this the Force Support community will also need to continually track and update its population of authorizations and the competencies required and conferred by each authorization.

The Air Force's Career Path Tool, which "career field managers can use to identify members with special experience [and] tailor developmental tracks to meet future needs," looks to be a capable tool to meet this need and should continue to be utilized in the future to allow for deliberate assignment management.⁸⁴ While the Career Path Tool serves as "a dynamic, web-based career planning and force development tool for Airmen."⁸⁵ the tool will also provide enhanced capabilities from the perspective of the career field managers. Through ongoing maintenance of the data contained within the Career Path Tool, career field managers and assignment teams can track individual officer duty histories based on prior functional and organizational experience. Examining this information on the aggregate will provide career field managers with a quantitative sense of their officers' developed competencies which can inform career field management decisions.

6.2 RECOMMENDED NEXT STEPS

⁸⁴ Gildea, 2011.

⁸⁵ Career Path Tool User Guide, 2010, p. 4.

The above section briefly highlights beneficial outcomes as a result of the suggested changes to the 38F career field structure and assignment management practices. To move towards restricting 38F authorizations along these lines and ensuring such assignment management practices are viable, this section provides some additional recommendations on specific steps that can be taken to promote the implementation of these suggested changes.

Moving to a sustainable grade structure involves increasing O1/O2 authorizations and decreasing the authorizations at each grade above O1/O2. There are several different approaches that can be utilized to implement such changes. In the cases where the same type of functional conferring billets will both be added to the population of O1/O2 authorizations and removed from the population of authorizations above O1/O2, the 38F community can simply roll the higher grade authorizations down into the population of O1/O2 authorizations. This approach can be utilized with some of personnel and Force Support billets that were removed from the population of O3, O4, and O5 billets in this dissertation's demonstrated approach to reaching a sustainable grade structure.

Beyond downgrading some authorizations into the O1/O2 grades, the 38F community should look for possible opportunities to swap authorizations between the enlisted and civilian authorization populations where available. Overall, more base-level manpower and staff-level services billets are needed in the population of 38F authorizations, and downgrading these types of billets from the authorization populations above O1/O2 would not yield a developmental benefit because the overall number of these types of scarce billets would remain the same. In this case, to secure a net increase in the base-level manpower and staff-level services billets, 38F community leadership should look to convert enlisted and civilian billets respective to these competencies to officer authorizations. At the same time, the 38F community could potentially swap excess personnel related officer authorizations to the enlisted and civilian community.

To determine whether such a specific approach is feasible, the 38F community will need to more comprehensively construct comprehensive

competency models for the enlisted and civilian Force Support communities. Informed Force Support personnel will need to code enlisted and civilian authorizations based upon the functional competencies they confer and the functional competencies they require of incoming personnel. At the same time, one can argue that a comprehensive competency modeling framework may be less critical to account for civilian and enlisted development. The enlisted manpower, personnel, and services career fields continue to operate as separate entities, as they did not undergo a merger that the previously separate respective officer career fields completed. Competency modeling may be less critical for the civilian component of the 38F career field as the civilian career field can hire externally at any grade and also have a much longer career length over which to develop competencies. Assuming manpower and services-conferring billets exist in excess capacity in the enlisted and civilian authorizations and their removal does not negatively impact the competency development opportunities of these separate personnel groups, these types of billets could be shifted to the officer authorization population. In looking to shift civilian or enlisted authorizations to the officer authorization population, the Force Support community should further consider whether the roles and responsibilities inherent in the job allow for enough leadership opportunities necessary for officer development.

If the 38F community establishes a sustainable grade structure and additionally increases the base-level manpower and staff-level services authorizations within this structure, much greater certainty will exist as to whether the acquired functional competencies of 38F officers will meet field-grade competency demands. While this will more readily promote the effectiveness of the Air Force's human resource management enterprise, the employed competency model should be periodically revisited and updated to reflect changing job requirements. Additionally, retention patterns and general USAF promotion policies will change over time, which will require the Force Support community to periodically tweak the sustainable allocation of authorizations at each grade. This continued maintenance is necessary

to ensure the long term viability and usefulness of the competency modeling approach.

APPENDIX A: USAF HUMAN CAPITAL MANAGEMENT SYSTEM

This appendix provides a basic introduction into the general workings of the USAF human capital management system for those readers unfamiliar. The USAF manages human capital via three subsystems: 1. Manpower, 2. Personnel, and 3. Training.⁸⁶ The manpower subsystem determines the USAF requirements, or demand, for manpower "resource which is sized to reflect the minimum essential level to accomplish the required workload."⁸⁷ Once aggregate USAF wide requirements have been determined, the USAF must then choose a subset of these requirements that will not exceed their allocated total manpower budget. These requirements that fit within the USAF's funded manpower budget are typically termed manpower authorizations. Each Air Force command then codes their authorizations in unit manpower documents (UMDs) based specific more specific elements, such as the military grade and Air Force Specialty Code (AFSC) respective to each authorization. This process for determining USAF manning authorizations repeats with changes in funding and mission needs.

With authorizations specified in UMDs, the USAF personnel system constantly operates, seeking to provide the right people to fill unit needs. The centralized Air Force Personnel Center (AFPC) incorporates headquarters policy guidance, projected personnel losses and rotations, and changes in manpower authorizations to make informed decisions on the assignment of personnel to best provide units with the right people to meet mission requirements. Thus, the USAF's personnel subsystem

⁸⁶ Conley et al., 2006, p.7.

⁸⁷ Air Force Instruction-38-201, p. 7.

primarily focuses on properly assigning officers to best fill unit manpower authorizations.

The third subsystem, training, focuses on developing USAF personnel so they are capable of meeting USAF mission needs. In addition to looking at the proper development and training of newly accessed personnel, the training subsystem focuses on career spanning force development efforts, which the USAF refers to as the Continuum of Learning (COL). In accordance with these career spanning developmental needs, USAF personnel undergo additional training and education as they progress in their careers.

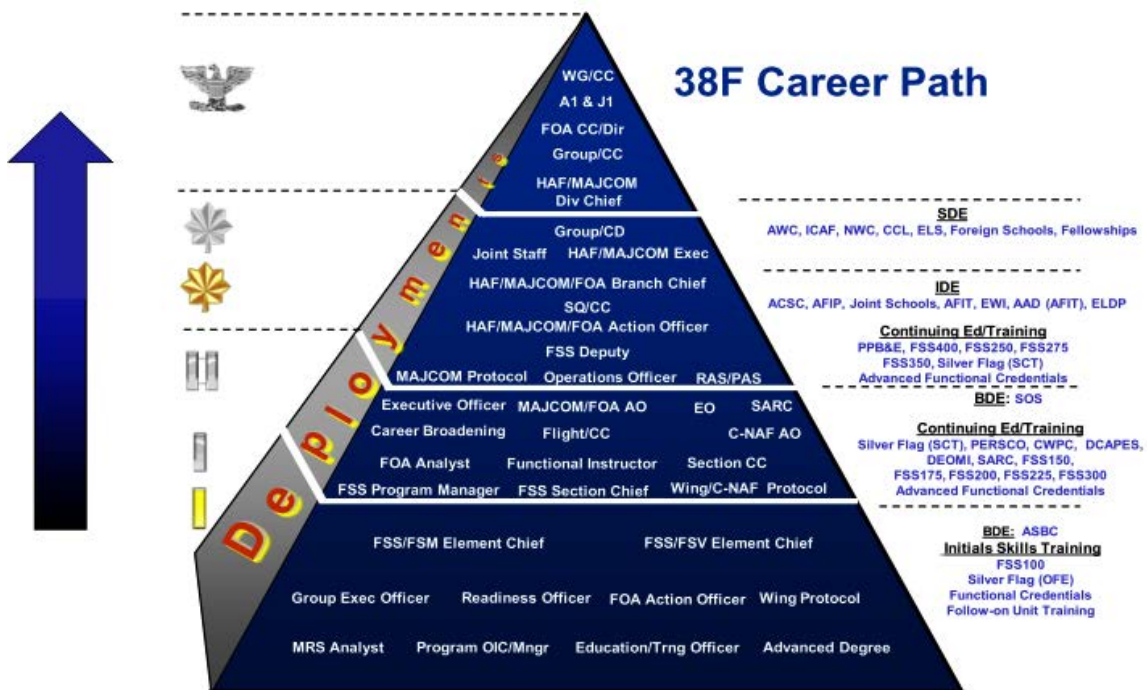
The USAF's specialty classification structure is a key piece of each of these three subsystems as "it helps match military jobs and personnel for Air Force purposes and facilitates a common occupational language between information systems."⁸⁸ The AFSC is the core, fundamental component of the USAF's specialty classification structure and generally classifies officers and authorizations into specific career fields by the overarching function and job responsibilities performed in that career field. For example, mobility pilot and developmental engineer are two separate USAF officer career fields.

Officers are typically assigned to one career field when they enter the Air Force based on their educational qualifications and completion of the initial skills training respective to each career field. Over the length of an Air Force career, an officer will typically occupy multiple jobs, or assignments, for different lengths of time. Officers are typically rotated to a new assignment within their career field every 2 to 4 years. Officers also advance in rank over time, opening up new assignment opportunities at each grade within their career field. Officers typically enter the Air Force at the grade of O1, or 2nd lieutenant, and later progress to O2 and O3. Grades O1 through O3 are described as the company grades. With time and selection, officers will advance to O4, O5, and O6, known as the field grades. The general officer ranks lie beyond the field grades. The

⁸⁸ Conley et al., 2009, p. ix.

pyramid in Figure A.1 illustrates this advancement from grade O1 to O6 while simultaneously showing some examples of different job and educational opportunities available at each grade for the Force Support officer career field. Other Air Force career fields have different career paths with different types of assignments available at each grade.

Figure A.1
Force Support Officer Career Field Progression



SOURCE: 38F Officer Career Field Education and Training Plan, 2008, p.12

The 38F career field progression pyramid displayed in Figure A.1 highlights an additional unique aspect of the Air Force's, and US military's, personnel system. The closed, hierarchical constraints of this system mean that the supply of officers at a given grade in a given career field is derived from the lower grade personnel in the same career field. If a given career field is looking to fill specific job requirements with qualified personnel, career field management cannot look to the open market to see if individuals with these

qualifications exist. They must primarily rely on the population of personnel who developed over time in their own career field to meet requirements. A small quantity of cross flow does exist between certain Air Force career fields, but such a practice is largely an exception to the career field development constraints discussed here.

APPENDIX B: RELEVANT 38F BILLET FUNCTIONAL INFORMATION

This appendix contains the coded functional competency requirements of the relevant Force Support field-grade billets and the functional competencies that these billets confer to the officers who inhabit such billets.

Tables B.2, B.3, and B.4 list the functional competencies conferred in the population of O4, O5, and O6 billets, respectively. An officer who inhabits one of these billets for a given length of time will add that functional competency quantified in years of experience to their portfolio of acquired competencies.

Tables B.5, B.6, and B.7 list the competency sets that these billets require quantified in terms of the years of prior experience that an officer should have in that specific functional area before inhabiting a given billet. For the three tables containing the functional requirements quantified in years, a short hand notation is used to specify the requirements. The functional areas of manpower, personnel, services, and Force Support correspond to the shorthand M, P, S, and FS abbreviations, respectively. A number following these shorthand abbreviations denotes the ideal years of experience an officer should have before holding a given billet. For example, the notation "M:2y" indicates that an officer should ideally have 2 years of Manpower experience before serving in a given billet.

The functional coding of these billets in the simulation was configured to allow for a link between the Force Support conferring billets and those billets strictly related to manpower, personnel, and services. Force Support conferring billets were identified as those billets which expose an officer to manpower, personnel, and services, but do not fully qualify an officer in any of these functional areas. At the same time, those billets requiring prior Force Support experience were coded such that they do not require full expertise in manpower, personnel, and services, but merely some exposure to all three.

Table B.1 MCM Force Support Coding Schematic

Functional Area of Billet	Functional Competency Conferred	Functional Competency Required (1 Yr. Reqs)
Force Support	M,P,S	M:1y,P:1y,S:1y
Manpower	PureM, M	PureM:1y
Personnel	PureP, P	PureP:1y
Services	PureS, S	PureS:1y

In the coding schematic illustrated in Table B.1, an officer who inhabits a Force Support conferring billet for a year will acquire a year of M, P, and S functional experience in the MCM. This experience fully functionally qualifies such an officer to serve in a Force Support related billet in the future, but it does not functionally qualify such an officer to serve in a billet specifically related to manpower, personnel, or services, as these billets require PureM, PureP, and PureS functional experience, respectively.

In order to fully functionally qualify to serve in billet directly related to manpower, personnel, or services, an officer in the simulation must have previously served in one of these billets. For example, the only way to garner PureM functional experience is by serving a billet solely related to manpower. At the same time, an officer who sequentially occupies a manpower billet, personnel billet, and then a services billet in some order would be functionally qualified to serve in a Force Support related billet. This successive occupation would qualify an officer with M,P, and S, (in addition to PureM,PureP, and PureS) fully qualifying them to serve in a Force Support billet. This coding scheme serves as a means of linking the Force Support billets with the more functionally focused billets concentrating on one functional area.

While this is the scheme utilized in the configured simulation runs, the tables below which show the distribution of functional experiences conferred and required within the field grades are described with the more the general specifications. The reader, however, should be aware that an officer can functionally qualify for those billets requiring Force Support functional experience by having previously served in Force Support billets or by successively serving

in manpower, personnel, and services billets. For those billets requiring previous functional experience specific to manpower, personnel, or services, an officer can only gain the functional qualifications to serve in one of these billets via previous service in a billet conferring the same respective functional experience.

Table B.2 O4 Job-Groups and Functional-Organizational Competencies Conferred

Functional Competency Conferred	Job-Group							Total
	CD/DD/FSO	Exec/CAG	HAF/FOA	Joint Credit	MAJCOM/NAF	Sq. CC	Other O4	
Manpower Base							2	2
Manpower Staff		1	12	2	14	1	9	39
Personnel Base	2						4	6
Personnel Staff		15	31	15	23		14	98
Services Base							7	7
Services Staff		1	3	1	7		1	13
Manpower & Personnel Base							9	9
Manpower & Personnel Staff		1	2	25	1		3	32
Force Support Base	43					2	3	48
Force Support Staff		5	5		8		1	19
Other Plus		31						31
Other			8	23	26		64	121
Total	45	54	61	66	79	3	117	425

Table B.3 05 Job-Groups and Functional-Organizational Competencies Conferred

Functional Competency Conferred	Job-Group								Total
	CD/DD/FSO	Exec/CAG	Group CD	HAF/FOA	Joint Credit	MAJCOM/NAF	Sq. CC	Other O5	
Manpower Staff				11	7	9	5		32
Personnel Base							1	7	8
Personnel Staff		4	1	47	17	18		4	91
Services Base							1	1	2
Services Staff				5	3	12		1	21
Manpower & Personnel Staff				3	19	1		9	32
Force Support Base	17						63		80
Force Support Staff		4		5	2	8		2	21
Other Plus		13	20						33
Other				14	20	14		38	86
Total	17	21	21	85	68	62	70	62	406

Table B.4 06 Job-Groups and Functional-Organizational Competencies Conferred

Functional Competency Conferred	Job-Group											Total
	M Specialist	P Specialist	S Specialist	FS Specialist	COCOM J1	MAJCOM A1	Group CC/ Wing CV	Strat Joint	Strat Junior	Strat Later	Other 6	
Manpower Base												0
Manpower Staff	6								1			7
Personnel Base												0
Personnel Staff		8						3	8	2	7	28
Services Base												0
Services Staff			7						2			9
Manpower & Personnel Base												0
Manpower & Personnel Staff					5			9			3	17
Force Support Base											1	1
Force Support Staff				1		8		1	1		5	16
Other Plus							20	1	2	8		31
Other											19	19
Total	6	8	7	1	5	8	20	14	14	10	35	128

Table B.5 O4 Job-Groups and Preferential Functional Requirements

Functional Competency Required	Job-Group							Total
	CD/DD/FSO	Exec/CAG	HAF/FOA	JointCredit	MAJCOM/NAF	Sq. CC	OtherO5	
FS:1y, P:1y, S:1y		4		12				16
M:1y					12			12
M:2y			12	3		1	9	25
M:1y, P:1y				20	1		1	22
M:2y, P:2y			3					3
P:2y			12	5	9		11	37
S:1y					4			4
S:2y			3				1	4
Any	45	50	31	26	53	2	95	302
Total	45	54	61	66	79	3	117	425

Table B.6 O5 Job-Groups and Preferential Functional Requirements

Functional Competency Required	Job-Group								Total
	CD/DD/FSO	Exec/CAG	Group CD	HAF/FOA	JointCredit	MAJCOM/NAF	Sq. CC	OtherO5	
FS:1y, P:1y, S:1y		2			8	1		2	13
M:1y						9			9
M:2y				10	8		5		23
M:1y, P:1y					15	1		8	24
M:2y, P:2y				3					3
P:2y				32	17	8		10	67
P:3y			1						1
S:1y						10			10
S:2y				4	3			2	9
Any	17	19	20	36	17	33	65	40	247
Total	17	21	21	85	68	62	70	62	406

Table B.7 O6 Job-Groups and Preferential Functional-Organizational Requirements

Functional Competency Required	Job-Group										Total	
	M Specialist	P Specialist	SSpecialist	FS Specialist	COCOMJ1	MAJCOMA1	Group CC/ WingCV	StratJoint	StratJunior	Strat Later		Other6
M-base:2y, M-staff:4y, SqCC:2y	6											6
P-base:2y, P-staff:4y, SqCC:2y		8										8
S-base:2y, S-staff:4y, SqCC:2y			7									7
FS-base:2y, FS-staff:4y, SqCC:2y				1								1
FS:1y, M:1y, P:2y, OtherPlus:1y					5							5
FS:2y, M:2y, P:4y, S:2y, Other Plus:1y						8						8
M:1y, P:2y								8			2	10
M:1y, P:2y, S:2y											3	3
M:4y									1			1
P:3y											5	5
P:4y								1				1
P:5y, Zplus:1y									1			1
P:6y									7			7
S:5y									1			1
Any							20	5	4	10	25	64
Total	6	8	7	1	5	8	20	14	14	10	35	128

APPENDIX C: A1PF BASED MCM SIMULATION INPUTS

A1PF utilizes a comprehensive model which forecasts the expected number of personnel at each CYOS. This information was used to dictate the personnel retention behavior in the 38F career field simulation.

Table C.1: A1PF Provided Retention Parameters and Modifications

CYOS	38F Core Officer Population	Continuation Rate	Cumulative Continuation Rate	Modified Cumulative Continuation Rate
0	92.37	1.16	1.00	1.00
1	107.07	1.03	1.16	1.00
2	110.48	0.97	1.20	1.00
3	106.99	0.92	1,16	1.00
4	98.91	0.91	1.07	1.00
5	89.76	0.91	0.97	0.97
6	81.91	0.91	0.89	0.89
7	74.42	0.95	0.81	0.81
8	70.68	0.95	0.77	0.77
9	66.93	0.94	0.72	0.72
10	62.59	0.93	0.68	0.68
11	58.12	0.96	0.63	0.63
12	55.78	0.95	0.60	0.60
13	52.84	0.98	0.57	0.57
14	51.93	0.97	0.56	0.56
15	50.29	0.96	0.54	0.54
16	48.26	0.96	0.52	0.52
17	46.45	0.97	0.50	0.50
18	45.24	0.98	0.49	0.49
19	44.21	0.78	0.48	0.48
20	34.53	0.81	0.37	0.37
21	28.08	0.85	0.30	0.30
22	23.94	0.88	0.26	0.26
23	21.04	0.86	0.23	0.23
24	18.17	0.86	0.20	0.20
25	15.61	0.78	0.17	0.17
26	12.16	0.69	0.13	0.13
27	8.34	0.62	0.09	0.09
28	5.14	0.71	0.06	0.06
29	3.66	0.00	0.04	0.04

Examining Table C.1, one can see that A1PF's number of officers expected in each CYOS increases between CYOS 0 and CYOS 2. A1PF personnel explained this increase in the fact that their comprehensive model accounts for cross flow into the career field at these year points. A good number of officers who initially access into other Air Force career fields are typically cross flowed into career fields such as Force Support if they fail to complete their initial skills training, and A1PF's projected 38F officer population by CYOS accounts for this practice.

A1PF further used these projected numbers of expected 38F officers at each CYOS to calculate continuation rates and cumulative continuation rates respective to the 38F career field. The continuation rate (CR) is calculated as the percentage of 38F officers serving in year n and also at year $n+1$. The cumulative continuation rate (CCR) is calculated for each year of service as the probability that an officer accession will remain on active duty in that specific component through that year of service. While CRs and CCRs are typically less than 1 for each CYOS, the inclusion of early company-grade cross flows in A1PF's projection of 38F officers at each CYOS causes these rates to be greater than 1 for these time periods.

While the MCM can theoretically accommodate the personnel flow of separate accession cohorts, such as those officers initially accessed into the 38F career field as O1s and those officers cross flowing from other career fields at later points in time, doing so requires having separate known cumulative continuation rates for each cohort as inputs in the MCM. As A1PF did not have this specific information, a simplifying assumption was made in order to model the personnel flow in this research: all A1PF calculated CCRs greater than 1 were dropped down to 1. This is shown in the column titled, "Modified Cumulative Continuation Rate," and is the retention model used in simulating the 38F career field in this research. This results in a personnel flow for the first 4 CYOS in which no members of an initially accessed cohort separate and there are no cross flows into the career field either. Beyond this point in time, the cumulative continuation rates used to model personnel flow in the MCM reflect those provided by A1PF.

The expected years of service per 38F CGO entrant and FGO entrant used in Section 3.1 to demonstrate the unsustainable nature of the 38F authorization structure were derived from the CCRs used to drive retention behavior in the MCM. One can calculate the expected CGO years of service per 38F entrant by summing the cumulative continuation rates over the first 10 years. Equating years 1-10 with company-grade service, one expects 8.83 years of services, on average, per entrant. A running sum of the renormalized CCRs for years 11 through 22 indicates that one can roughly expect 9.29 years of service, on average, per entrant.

In addition to consulting A1PF for patterns of 38F retention, A1PF also provided their inputs on 38F promotion parameters and TIG and TIS assumptions. As with the A1PF provided retention parameters, some of these parameters were slightly modified for use in the actual MCM model. Table C.2 provides the current average phase points and promotion probabilities for pin-on to next grade when factoring in below-the-promotion-zone and in-the-promotion-zone promotions.

Table C.2 A1PF Provided Promotion Parameters

Promotion to Grade	Average TIS Before Promotion (Years)	Probability of Promotion to Grade(%)
O2	2	100
O3	4	95
O4	10.3	90
O5	15.2	85
O6	21.9	55

Table C.2 roughly shows that the average due-course 38F officer will spend around 2 years as an O1, 2 years as an O2, 6 years as an O3, 5 years as an O4, and around 6 and a half years as an O5 before being promoted to O6. These time based promotion phase points and probabilities were initially used along with the previously discussed modified retention parameters in the simulation model as a means to validate A1PF's advertised sustainable authorization structure. Running the simulation with these promotion phase points resulted in a slightly higher O1/O2 population and lower O6 population proportions

when compared to A1PF's presented proportions. Given this, some slight changes were made to A1PF's presented parameters for use in the simulation. The promotion from O1/O2 to O3 in the configured simulation in the MCM was made automatic once officers reach the 4 year point, and simulated O5 officers became eligible for promotion to O6 after serving 5 years at O5. Table C.3 shows the modified promotion phase points and probabilities configured in the simulation to move the proportion of personnel at each grade closer to A1PF's sustainable structure.

Table C.3 Modified A1PF Promotion Parameters Used in MCM

Promotion to Grade	Average TIS Before Promotion (Years)	Probability of Promotion to Grade(%)
O2	2	100
O3	4	100
O4	10	90
O5	15	85
O6	20	55

A1PF also provided rules for the maximum TIG and maximum TIS relative to each grade to use in the model. These are depicted in Table C.4.

Table C.4 A1PF TIG and TIS Rules

Promotion to Grade	Maximum Time in Grade (Years)	Maximum Time in Service (Years)
O1	2	2
O2	3	5
O3	7	11
O4	10	20
O5	13	28
O6	8	30

Except for the maximum TIG and TIS rules respective to O2, these maximum TIG and TIS rules were directly used in the MCM configuration of 38F personnel flow. The maximum TIG and TIS rules respective to O2 are not used because the simulation was configured so O2 officers automatically advanced to the grade of O3 after 4 CYOS.

APPENDIX D: MONTE CARLO SIMULATION RESULTS

This appendix displays the results of simulation runs in which different seeds were utilized to initialize the pseudo-random number generator employed in the simulation. The Military Career Model simulated each configuration of the 38F career field 100 times using a different seed to the pseudo-random number generator for each run. The results of these Monte Carlo simulation runs are shown below for the exploratory analysis in which base-level manpower and staff-level services billets are added to the population of O1/O2 authorizations.

Figure A.2 shows the impact on the qualified fill rates of the O6 billets requiring specialized manpower experience as additional base-level manpower billets are added to the population of O1/O2 authorizations. For each career field configuration in which 100 simulations runs were completed, the results are presented in a box plot.

Figure A.2
Iterative Addition of O1/O2 Base-Level Manpower Billets

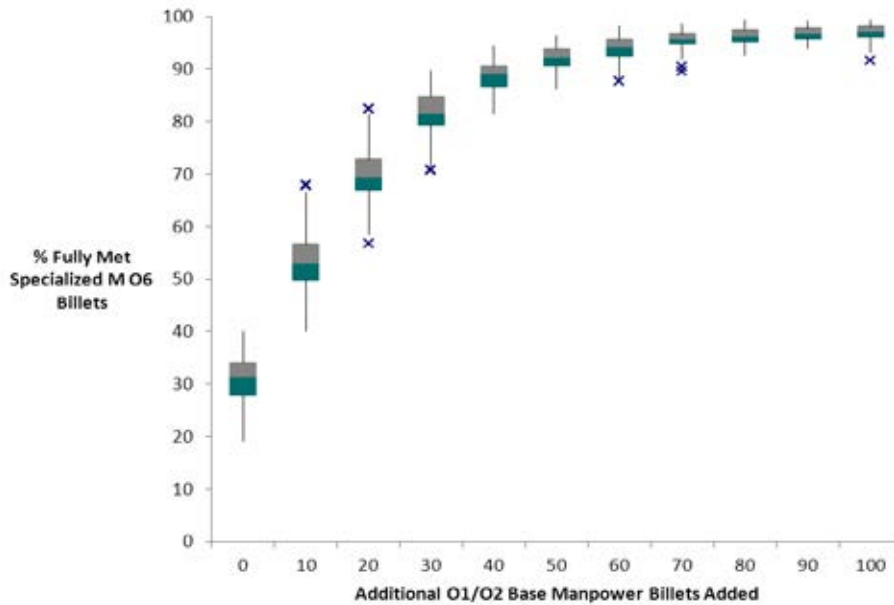


Figure A.3 presents a similar box plot for 38F career field configurations in which staff-level services billets are added to the population of O1/O2 authorizations ten at a time. This shows how the iterative addition of staff-level services billets to the O1/O2 authorization population improves O6 billets requiring services specialization. For the results displayed in Figure A.3 the simulation is configured to reflect an assignment management system with 2 year assignments to staff-level services billets in the company grades.

Figure A.3
Iterative Addition of O1/O2 Staff-Level Services Billets: 2 year Assignment

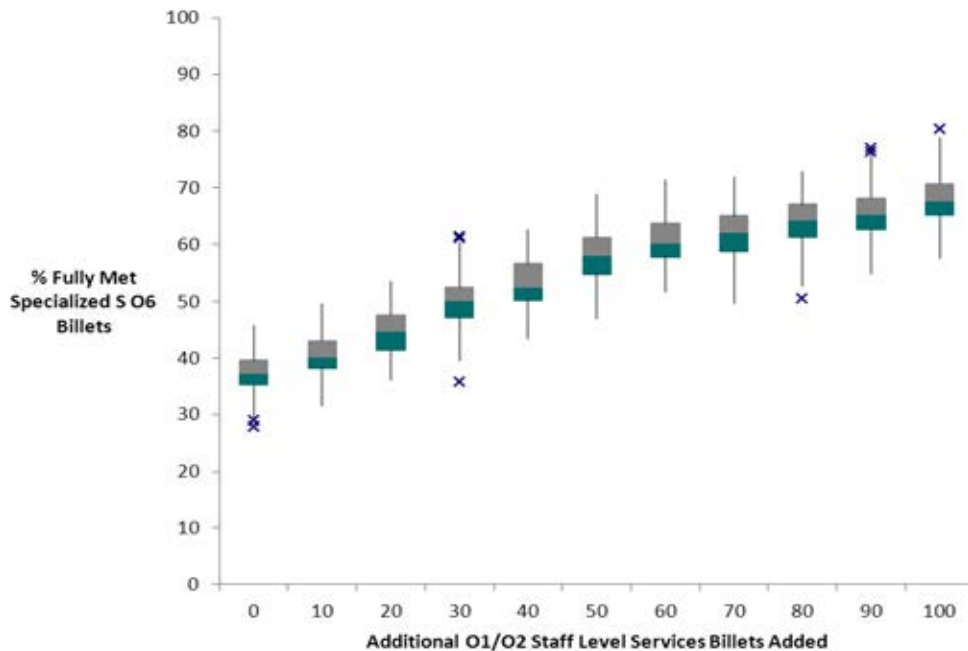
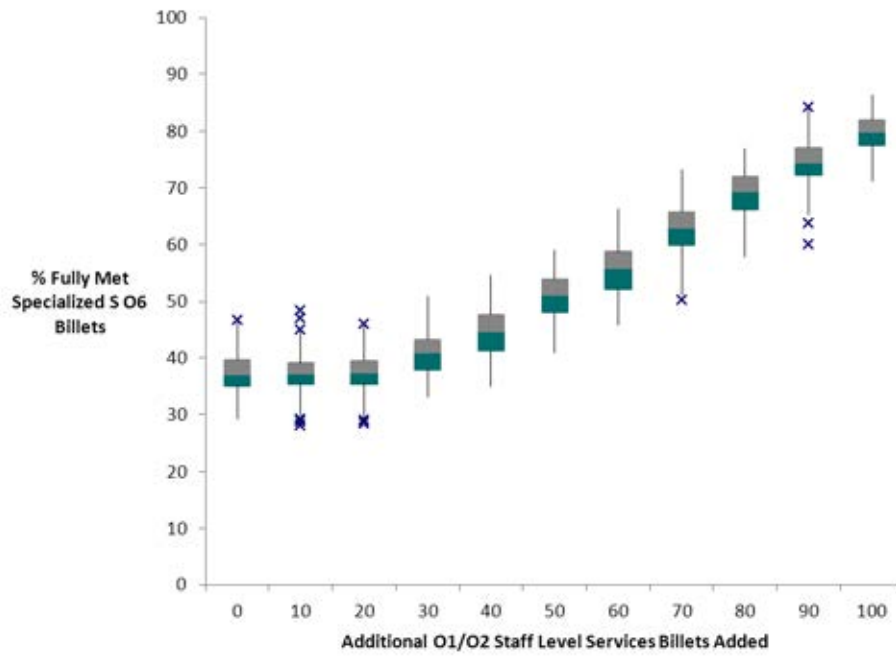


Figure A.4 similarly shows the impact of adding additional staff-level services billets to the population of O1/O2 authorizations on the O6 billets requiring services specialization. The results presented in Figure A.4 are derived from a simulation setup which allowed officers to occupy a 4 year staff-level services assignment as an O1/O2. With this setup, officers can completely fulfill O6 services specialist

requirement for 4 years of services experience at the staff-level upon entrance to the field grades.

Figure A.4
Iterative Addition of O1/O2 Staff-Level Services Billets: 4 year
Assignment



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