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TECHNICAL REPORT

Targeting the Occupational Skill Pairings Needed in New Air Force Colonels

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Summary

Many jobs for Air Force colonels (grade O-6) and generals (grades O-7, O-8, O-9, and O-10)¹ call for officers with specific occupational backgrounds (e.g., in fighters, mobility operations, space, intelligence, logistics, communications, acquisition, or political-military affairs). But the jobs that need a particular occupational background often do not form a practical experience pyramid (e.g., fewer jobs may be suitable as first O-6 jobs than as second O-6 jobs, or fewer may be for O-7s than for O-8s). This causes the Air Force to assign officers at some experience levels to jobs that do not necessarily call for their primary occupational backgrounds. Thus, officers from, say, the bomber community may sometimes need to fill leadership jobs where prior experience in acquisition or political-military affairs would be more appropriate. Moreover, some jobs need officers with a second occupational competency (e.g., with a primary background in bombers—either pilot or navigator—plus experience in acquisition, or a primary background in intelligence plus experience in political-military affairs). Either phenomenon implies a need for the Air Force to develop a second occupational competency, or a paired skill, in some of its future colonels and generals. Prior research recommended specific combinations of primary and paired skills for most new generals.¹

In 2003, AFSLMO issued a list of the skill pairings needed in future GOs, and the Chief of Staff of the Air Force and the Secretary of the Air Force launched a force-development initiative to actually develop those pairings and other competencies. As part of that initiative, 38 development teams (DTs) were formed in 2004 and 2005 to assess the health of their respective career fields and to deliberately guide the development of majors and lieutenants therein. In 2004, the Air Force Personnel Center (AFPC) issued guidance for a program of two-year developmental assignments (DAs) for new graduates of intermediate developmental education (IDE), largely majors, intending to help the functional communities begin developing AFSLMO's designated skill pairings in officer cohorts. But the guidance's numerical targets were vague; some were questioned sharply; and several functional communities resisted dedicating some of their manpower slots (funding) to the development of officers from other career fields. In 2005, a conference of career-field managers (CFMs) postponed implementation of the DA program until its details could be revised and properly justified.

Toward that end, personnel leaders at the Air Staff and AFPC decided to extend down to colonels the sort of analysis that had helped establish the initial targets for the mix of occupational backgrounds in new GOs. That is, they launched efforts to identify the backgrounds needed for colonels' jobs and then derive recommended mixes of primary and paired skills for most new colonels. The earlier analysis had not considered the legal, medical, and clergy

¹ Robbert et al., 2005.

portions of the GO force, only the so-called line, where officers from all other occupations compete for promotion. The effort planned for 2005 aimed to cover all officer occupations and even Air Force civilians in grade GS-15, aspiring to address colonels and GS-15s simultaneously, as had been done for military GOs and SES civilians.² We developed the analytic framework described in this report as part of that effort and used it with data about colonel positions' needs that were already available.³

Line Colonel Positions' Needs for Primary and Paired Skills

During 2002 and 2003, RAND helped experts from the functional communities, AF/A1 staff, and MAJCOMs create, review, and refine a requirements database for 2,778 colonel positions (excluding only the medical, legal, and chaplain corps); naming the primary and paired skills needed for each position; telling which positions needed officers in their first, second, or subsequent jobs as colonels; and distinguishing which were "platform jobs," positions used frequently to help prepare or test those colonels with greater chances of eventual promotion to GO. The requirements' hallmark was their flexibility. For example, 60 percent of the positions were characterized as open to more than one primary skill, including 19 percent that were open to all (any) primary skills. Five of the top ten requirements for primary skills were flexible: any, any rated, any acquisition or any finance, any operations, and mobility (including airlift and tanker pilots and navigators). (See p. 13.) Some 78 percent of the positions did not need a paired skill at all, although they were open to colonels with paired skills. Four of the top ten requirements for paired skills were flexible: none, any acquisition, any rated or any logistics, and any acquisition or any logistics. (See p. 18.) Some 96 percent of the jobs were at least somewhat flexible in their requirements for either a primary skill, a paired skill, or both. Moreover, 38 percent were judged appropriate for colonels with different levels of experience, and only 20 percent were classified as platform jobs and, hence, open essentially only to so-called "fast-track" colonels.

Shaping a Colonel Force to Meet Positions' Requirements

Retirement rates and job durations dictate experience *pyramids* for each skill-pairing's colonels. For example, more officers with a primary skill in missile operations and a paired skill in missile maintenance should be in their first jobs as colonels than in their second or more senior jobs. The size of a skill-pairing's experience pyramid generally needs to exceed the number of positions calling for that particular pairing for two or three reasons: (1) the positions that call for the pairing need a mix of experience that does not match the natural pyramid; (2) multiple qualified candidates should be available when openings occur, permitting *selectivity*; and (3) enough senior colonels must be available to become generals, who nearly all need paired

² See Robbert et al., 2005.

³ AFSLMO planned and fielded a survey in 2005 to identify the occupational and other qualifications needed for Air Force colonel and GS-15 civilian positions, but the survey did not come to full fruition. We used earlier, narrower data about colonel positions to derive targets that the development teams could use promptly to help steer their skill-pairing deliberations for individual officers beginning in fall 2005.

skills. Fortunately, the position requirements' considerable flexibility could accommodate the necessary pyramids.

We created a flow model that recommends sizes for each skill-pairing's experience pyramids (one for fast-trackers⁴ and one for others), the necessary annual inflows, and alignments between the positions and each pyramid's (modeled or virtual) colonels—for example, recommending that

1. officers with a primary skill as mobility pilots or navigators fill an average of four of the six positions calling for colonels
 - a. in the second experience tier
 - b. with any rated primary skill
 - c. with a paired skill in plans and programs
2. fighter and special operations colonels split the other two such positions equally.

This example illustrates the important fact that the model does not use fair-sharing to allocate requirements among the acceptable skills.⁵ Instead, the model recommends mixes of new colonels that would sustain occupational pyramids whose skills, experience, and tracks met the jobs' requirements, aiming to minimize

1. shortfalls from selectivity goals
2. numbers of new colonels with paired skills
3. differences from a mix of skills that is specified in advance⁶
4. numbers of new colonels on the fast track
5. designation of narrower skills (e.g., it favors generic rated colonels over fighter pilots insofar as possible)
6. variations in the primary skills' shares of newcomers with paired skills.

Policy parameters control targeted levels of selectivity and GO inflow as well as adherence to experience and track specifications. For example, more new colonels need a paired skill and the mix of primary skills is less flexible if the selectivity target is higher. (See pp. 38 and 39.) Each model run involves extensive mixing and matching.

Two Optimal Solutions: The Basis for FY 2006's Occupational Development Floors

Because the flow model minimizes the number of new colonels with paired skills and favors the more flexible primary and paired skills, its solutions reflect minimum average annual num-

⁴ Because they are regarded as especially sensitive, we report detailed numbers for neither platform positions nor colonels on the fast track, although those dimensions were distinguished in the analysis.

⁵ Fair-sharing would allocate flexible positions in predetermined ratios among the categories of eligible colonels, the ratios based on the numbers of other positions that call for those categories. For example, if 20 jobs called for Skill A, 30 for Skill B, and 25 for either A or B, fair-sharing would allocate 10 of the latter to Skill A and the other 15 to Skill B.

⁶ This analysis used the mix of primary skills seen in fiscal year (FY) 2005's population of colonels as its reference mix. The model recommended deviating from that mix only to achieve objectives that were accorded higher priority (e.g., fulfilling skill and experience requirements, meeting selectivity goals, and minimizing the need for paired skills).

bers of new colonels with each specific combination of primary and paired skill, under the selected control policies. For example, at least 13 percent of the new colonels with a primary skill as fighter pilots may need a paired skill in plans and programs, 11 percent in acquisition, and 11 percent in aerospace power employment. (See p. 125.) The team that framed the officer skill development targets adopted two sets of policy parameters that generated different minimums or floors. (See p. 43.) The more demanding set generated a solution labeled *preferred* whose floors and alignments yielded higher selectivity, closer adherence to requirements for experience and track, and more colonels with the skills needed among new GOs. The solution for the less demanding parameters was labeled *marginal*. Nearly two-thirds of the entry cohort was the same in both solutions. (See pp. 45, 125–132.) The preferred solution recommended more new colonels on the fast track, more with paired skills (58 percent versus 31 percent in the marginal solution), and less occupational flexibility. (See p. 45.) Both solutions recommended paired skills for relatively more nonrated operations colonels and for relatively fewer support colonels than for rated, logistics, and acquisition/finance colonels. (See pp. 49–56.)

Although this analysis concentrated on the mixes of paired skills needed among new colonels, it also illuminated the mix of primary skills needed in the colonel force. The optimizations recommended that rated officers constitute about 34 to 41 percent of the total (down from the 47 percent seen in 2005’s actual force), that logistics officers constitute about 12 to 14 percent (up from 2005’s actual 10 percent), and that acquisition/finance constitute about 18 percent (up from 2005’s actual 13 percent). And they recommended some shifts within broad occupational categories (e.g., larger shares for control and recovery officers within the nonrated operations category, for public affairs within the support category, and for scientific officers within the acquisition/finance category). (See pp. 65–66.)

Deriving Developmental Floors for Officer Development Teams

The recommended solutions included floors for several primary skill groups that cut across multiple Air Force development teams’ career fields—for example, “pilot” cut across the combat air force (CAF), mobility air force (MAF), and special operations force (SOF) teams, and “any acquisition or any logistics” cut across several acquisition and logistics teams. Others were narrower—e.g., “fighter pilot” and “bomber pilot” were narrower than the CAF team, and “satellite command and control” and “space lift” were narrower than the space and missile operations team).

To match the DTs’ boundaries, we allocated to specific teams those developmental targets that cut across multiple teams’ scopes (e.g., we allocated “pilot” targets among CAF, MAF, and SOF), and we summed the floors for primary skills within a DT’s scope (e.g., for the CAF we summed all floors for new fighter, bomber, and air battle manager colonels). The allocations were purposely not based on fair shares. Instead, they aimed to balance the eligible career-fields’ burdens for developing paired skills. (See pp. 73–78.) If skill-pairing draws renewed interest in the future, desirably with more time and resources available for this step, we recommend that Air Force development teams eventually (1) address the more detailed primary skills (e.g., the CAF team should distinguish fighter, bomber, and air battle manager [ABM] specialists) because such colonels often cannot substitute for each other and, consequently, their development needs can differ legitimately, and (2) ascertain whether allocations are unnecessary or inappropriate. Allocations would seem unnecessary if enough officers in the eligible

career-fields' cohorts already had developed the targeted paired skills, and they would seem inappropriate if more or fewer pair-building assignments were readily available within or to some of the eligible career fields). (See pp. 71–73.)

Rated Career Fields

The analysis targeted at least 24 percent of new rated colonels with paired skills (marginal solution) but preferably at least 53 percent (preferred solution). Nearly the same percentage floors were recommended for new CAF, MAF, and SOF colonels with paired skills in total. Relatively larger shares were recommended for CAF officers with paired skills in aerospace power employment and international political-military affairs, only MAF officers were recommended with a paired skill in mobility operations, and relatively larger shares were recommended for SOF officers with paired skills in plans and programs, personnel/manpower, and logistics readiness. (See pp. 78–80.)

Nonrated Operations Career Fields

The marginal and preferred cases, respectively, recommended paired skills for at least 62 percent and at least 93 percent of new colonels from these primary career fields, ranging from 0 percent for control and recovery to 100 percent for airfield operations, space/missile operations, and intelligence. Their most common paired skills were acquisition, plans/programs, aerospace power employment, and information operations. (See pp. 81–83.)

Logistics Career Fields

The marginal and preferred floors for new logistics colonels with paired skills were 29 percent and 56 percent, respectively. The numbers were somewhat different for maintenance and for logistics readiness officers. Their most common paired skills were acquisition, communications and information systems, logistics readiness (for maintenance specialists), and maintenance (for logistics readiness specialists). (See pp. 83–84.)

Support and OSI Career Fields

The paired-skill floors for these fields were 21 percent and 36 percent in the marginal and preferred cases, respectively, ranging from 0 percent for services to 86 percent for public affairs and for personnel/manpower. Their most common paired skills were plans/programs and international political-military affairs. (See pp. 84–85.)

Acquisition and Finance Career Fields

The floors for these colonels were at least 36 percent and at least 67 percent in the marginal and preferred cases, respectively, with lower percentages for finance and higher percentages for scientists. The most common paired skills were acquisition management (for scientists and developmental engineers), any acquisition (for developmental engineers and finance officers), and space satellite command and control and space lift (but neither space paired skill was recommended for finance officers). (See pp. 84, 86–87.)

Ways to Improve the Skill-Pairing Floors

A review of how DTs used, considered, or adjusted their floors from the values in this report might point the way toward improvements in the underlying data and methodology. If the Air Force puts renewed emphasis on deliberately developing paired skills in its future leaders, we recommend such a review, plus the following steps (pp. 91–92):

- Update and forecast colonel positions' requirements for skills, tracks, and experience levels.
- Update and forecast GO inflow requirements.
- Identify the requirements for GS-15 jobs and integrate the planning for skill pairings in military and civilian personnel at these grades.
- Represent learning in the flow model (i.e., some may still gain paired skills after promotion to colonel).
- Refine the estimates of behavioral parameters (e.g., retention rates and job durations).
- Reflect uncertainties in the flow analysis (e.g., uncertainties about job durations, which colonels will stay or leave, who will be promoted to GO, and time until retirement or promotion).
- Address floors in greater detail within some DTs' scopes (e.g., recognize that fighter pilots and air battle managers are not always acceptable substitutes for each other and have legitimately different needs for paired skills).
- Account for cohorts' past development and the availability of future developmental opportunities before allocating across development teams any residual needs for skill pairs.