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Improving the DOD Manpower Management Workforce

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Abstract

The process for determining and validating requirements, associated manpower, and the workforce mix necessary to achieve an organization's mission requires specialized knowledge, skills, and abilities. Unlike other career fields, however, there is no common training or certification process that ensures minimum standards and competencies among personnel performing manpower functions. This project examines whether the goal of common training and standards for all personnel performing manpower management (MM) functions in DOD is achievable and desirable. We find evidence that there are MM training gaps and inefficiencies in DOD and that, in general, MM functions are similar enough to allow standardized training and education. The data necessary to show that improving the quality of MM workforces will improve MM processes and outcomes is lacking, however. We recommend that DOD collect the necessary data to further examine the impact of MM workforce quality on MM outcomes and processes.

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Executive Summary

The manpower management (MM) process in the Department of Defense (DOD) determines the quantity and mix of Total Force labor necessary for a given activity. It ensures that there are enough people with the right capabilities to achieve the mission, while considering which type of labor is the most cost effective. This process for determining, assessing, and validating requirements, associated manpower, and the workforce mix necessary to achieve an organization's mission is complex and requires specialized knowledge, skills, abilities (KSAs) and experience. Unlike other career fields, however, there currently is no common training or certification process that ensures minimum standards and competencies among those performing MM functions: each component handles the personnel performing MM functions differently. This project examines whether common training and standards for all personnel performing MM functions in DOD is achievable and desirable.

Combining information collected from past studies and policy documents, subject matter expert (SME) discussions with manpower experts throughout DOD, and position data analysis, we explore who is performing MM in DOD, how they are trained, and the KSAs necessary to perform MM functions. We then explore whether there is sufficient overlap of MM functions and KSAs across organizations and types of personnel to standardize MM training and education. Finally, we answer the question of whether MM training *should* be standardized. This assessment takes into account evidence from previous assessments of the quality of the MM workforce and how it affects MM processes and outcomes, SMEs' appetite for standardization, and lessons learned from implementing the Defense Acquisition Workforce Improvement Act (DAWIA).

Although we find evidence that there are MM training inefficiencies and gaps in DOD and that, in general, MM policies, functions, and KSAs are similar enough to allow standardized training and education, we find that DOD does not have the data necessary to show that improving the quality of MM workforces will improve MM processes and outcomes. First, the MM workforce acts within the confines of the MM process. If the process itself is not operating effectively as has been shown in previous studies, workforce improvements will have a limited impact. In addition, to identify the effect of workforce quality on MM outcomes, DOD needs to assess MM outcomes and relate those outcomes to the workforce. Currently, such a mapping of the MM workforce to outcomes is not possible. Accomplishing this would require the development of metrics that inform the quality of the work being done.

We recommend that DOD collect the data necessary to continue analysis of whether a DOD-wide MM training and education program is desirable. This includes performing a manpower requirements determination (MRD) study of the DOD MM workforce to understand the true requirement for MM throughout DOD. We also recommend that DOD conduct a full competency assessment to obtain detailed information on the KSAs required for the various MM functions.

Finally, we recommend that DOD define MM outcomes and develop metrics based on the things that the MM workforce could influence and that ultimately would affect outcomes. Without a definition of outcomes that the MM workforce could be expected to influence, and a way to measure those outcomes, DOD cannot use outcomes to measure the MM workforce's quality.

Contents

Introduction

Background

The Department of Defense's single largest expenditure is labor, and the originating "demand signal" for this labor is generated through the manpower management (MM) process. This process is the determination of the quantity and mix of Total Force labor necessary for a given activity, be it military personnel (active or reserve), government civilians, or contractors. It ensures that there are enough people with the right capabilities to achieve the mission, while considering the cost of each type of labor.

The MM process is unique within the department in that personnel performing MM functions serve in an analytical role that supports all other communities. Ultimately, the manpower management process requires a strategic and long-term vision and is a crucial function for shaping the workforce throughout DOD. Therefore, it is critical that MM processes, including requirements determination, be rigorous and analytically based. That makes training, education, and the appropriate experience among personnel performing MM functions essential. Although studies have been conducted to examine and address issues with manpower management processes, few have focused on the manpower management workforce. This study begins to fill that gap.

Issues

The process for determining, assessing, and validating requirements, associated manpower, and the workforce mix necessary to achieve an organization’s mission is complex and requires specialized knowledge, skills, and abilities (KSAs) and experience. Unlike other career fields, however, there is no common training or certification process that ensures minimum standards and competencies among personnel performing manpower functions: each component handles these personnel differently. This project examines whether the goal of common training and standards for all personnel performing MM functions in DOD is achievable and desirable.

Descriptive tasking

Several of the study's tasks entail describing the current state of MM in DOD. Specifically, looking across DOD, we describe the following:

- The range of MM functions, from analysis to policy development, and the KSAs needed to perform them
- The types of personnel performing MM functions and whether they differ depending on the function performed
- The development process for personnel performing MM functions, including how they are trained and educated

Policy tasking

Other study tasks aim to make policy recommendations in the following areas:

- The potential for improving the quality of personnel performing MM functions through the application of common training, education, and standards or the establishment of a manpower certification program
- The feasibility of creating a MM training program to standardize the type and length of training, education, and experience across the MM workforce

Analytical approach

We combined information collected from past studies and policy documents, subject matter expert (SME) discussions with manpower experts throughout DOD, and position data analysis to answer the descriptive and policy questions listed above.

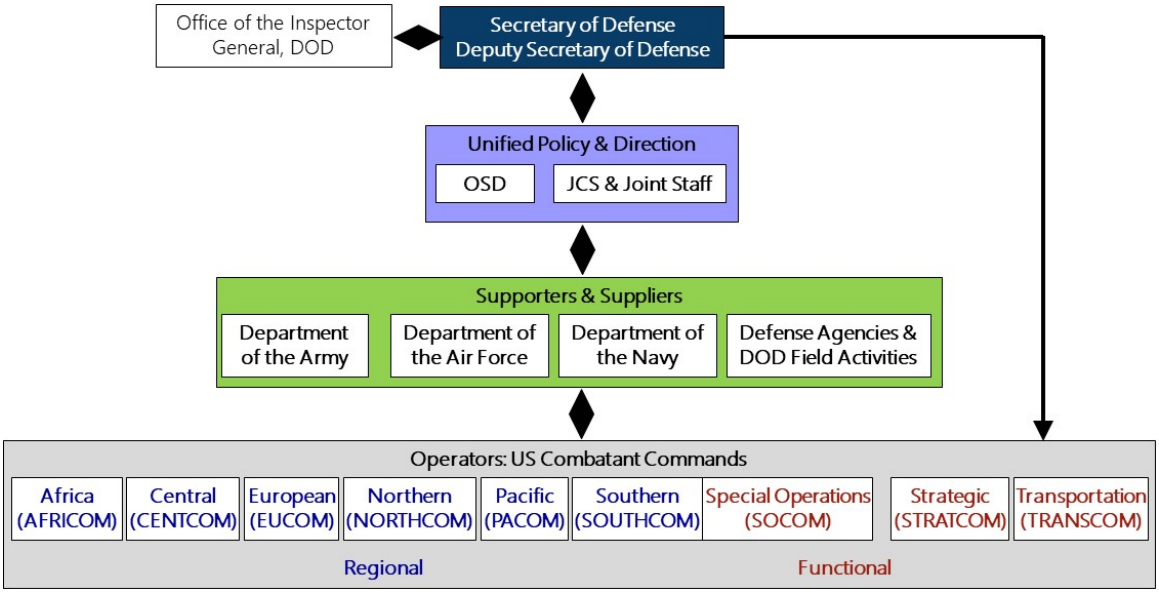
To determine if MM training and education *can* be standardized, we considered whether there is sufficient overlap of MM functions and MM KSAs across components and types of personnel. We also asked SMEs their opinions on the potential to standardize manpower training and education.

To explore whether MM training and education *should* be standardized through a common DOD training and education program, we considered several factors, starting with existing evidence that the quality of the MM workforce is negatively affecting MM processes and outcomes. We ask SMEs about the potential costs and benefits of such a program. In addition, we discuss lessons from implementing the Defense Acquisition Workforce Improvement Act (DAWIA). Finally, we summarize conclusions from our findings, and make recommendations based on them.

Scope

DOD MM encompasses positions for active and reserve military members and civilian personnel in all the DOD components.[1] In April 2019, the estimated number of positions for fiscal year (FY) 2020 was just over 2.9 million: 1,399,500 for active-duty military personnel; 800,800 for military reservists, including members of the National Guard; and 774,500 for civilian personnel.[2] Figure 1 identifies the DOD components with which these positions are associated, while also showing how they fit into the overall organizational structure of the department.

Figure 1. Organizational structure of DOD components



Source: Adapted from reference [2]

This study focuses on the people who implement the policies and practices that define MM for the components identified as "supporters and suppliers": the three military departments, as well as 20 defense agencies and 8 field activities (collectively known as the Fourth Estate). We

[1] MM also includes contractors, but we do not include contractors in our totals because of a lack of accurate data.

[2] These data come from Table 1-1 in reference [1].

also, however, consider other organizations within the Fourth Estate, such as higher level offices within the Office of the Secretary of Defense (OSD) and the Joint Chiefs of Staff (JCS).[3]

Outline

The document is organized according to the questions we posed to fulfill the study tasking. The first three sections of the report answer three sets of key questions:

- What is MM and what are its basic functions?
- What KSAs are needed to perform MM functions, and to what extent are they component specific?
- Who does MM across DOD, and what training and education are provided to support the MM workforce?

We use answers to these questions as well as additional analysis and SME discussions to address the policy tasking:

- Can MM training be standardized across DOD?
- Should MM training and management be standardized across the DOD?

The final section of the report summarizes the conclusions we draw from our findings, and the recommendations we make based on them.

[3] The Fourth Estate is any DOD organization other than the military services that has DOD manpower resources. This includes the OSD and the JCS and their staffs. Also part of the Fourth Estate are 20 defense agencies and 8 field activities that, along with the three military departments, are considered "supporters and suppliers" for the operational combatant commands. See Appendix A for more information.

What Is Manpower Management?

DOD Directive (DODD) 1100.4 [3] provides "Guidance for Manpower Management" to the DOD components identified in Figure 1. Each military service issues its own implementation guidance based on its force structure and associated organizational structure. The relevant documents for the four military services follow:

- Army Regulation (AR) 570-4, *Manpower Management* [4]
- Chief of Naval Operations Instruction (OPNAVINST) 1000.16L, *Navy Total Force Manpower Policies and Procedures* [5]
- Marine Corps Order (MCO) 5311.1E, *Total Force Structure Process* [6]
- Air Force Instruction (AFI) 38-101, *Manpower and Organization* [7]

We found formal documents providing implementation guidance for a few of the other DOD components,[4] but only that for the Chairman of the Joint Chiefs of Staff (CJCS) Instruction 1001.01B, *Joint Manpower and Personnel Program* [10], was as detailed as the service documents.

In this section, we use these and other documents to define MM in terms of its purpose and functions. Although it causes some loss of specificity, summarizing across documents allows us to create common terminology and definitions that apply across the department.[5]

Purpose of MM

We begin the discussion of the purpose of DOD MM with the following description of the purpose of the DOD itself:

> Although DOD has many responsibilities and functions, at the most basic level it is the organization responsible for manning, equipping, and training U.S. military forces. The vast majority of DOD's funding and personnel are assigned to tasks that contribute in some way to producing military forces that are

[4] See, for example, Defense Contract Management Agency (DCMA) Manual 4301-09, *Manpower and Mission Analysis* [8], and Defense Information Systems Agency (DISA) Instruction 640-45-32, *Organization: Manpower Management* [9]. One of our SME discussions also revealed that the Fourth Estate Management Office was developing manpower management guidance for Fourth Estate organizations, but that effort was not complete at the time of this writing.

[5] Readers who are interested in service-specific aspects of MM should see the service-specific documents.

> prepared for combat. As such, DOD can be viewed as an organization that converts "inputs" of funding and personnel into "outputs" of combat capability, which are then available to be used as the nation sees fit. That combat capability is best described in terms of the number and types of combat units that DOD can generate and sustain—that is, in terms of force structure. [11], p. 8]

To ensure that all units can provide the required capabilities, they must be staffed by sufficient numbers of personnel with the necessary skills and experience (i.e., enough and appropriate manpower resources). MM is the process by which DOD and the services define and fund the types and numbers of jobs, positions, and billets that must be filled to achieve the desired level of capability at both the organization and unit levels. In short, MM generates the signal of labor demand for each DOD component based on its own unique force structure.

Define manpower demand based on force structure

Using definitions from reference [11], DOD force structures are built from the following three types of foundational units:

- **Major Combat Units.** These are the most visible and generally most important combat units in DOD's inventory, such as Army brigade combat teams, Navy warships, and Air Force tactical fighter squadrons.
- **Support Units.** These are units that are employed alongside major combat units to support their activities in many different ways, including being responsible for engineering, intelligence, civil affairs, ordnance, maintenance, and transport.
- **Administrative/Overhead Organizations.** These are nondeployable units that perform such key functions as recruiting, training, acquisition, maintenance, and medical care that are necessary for manning, equipping, and training combat and support units. Some of these organizations exist within each military service, and some are defense-wide organizations that perform these functions for the entire department.

All the military services have unique versions of each type of unit, but there is also some overlap, especially among administrative units. Figure 2 shows the different types of major combat units for the three military departments.

Different types of combat units produce different capabilities and require different amounts of manpower. For example, consider the differences between Army Armored Brigade Combat Teams (BCTs) and Navy attack submarines. Armored BCTs are large tactical formations whose equipment and organization were originally designed for high-intensity ground combat with conventional armored opponents. The combat portion of an armored BCT has a brigade headquarters, a cavalry squadron, one artillery battalion, and three combined arms battalions.

It is equipped with armored combat vehicles, such as M1 Abrams series tanks, M2/M3 Bradley series infantry/scout vehicles, and M109 series self-propelled howitzers. In terms of manpower, an armored BCT has 4,200 combat positions. In contrast, Navy attack submarines are underwater vessels powered by nuclear reactors that allow them to operate independently for long periods and at long range. They are armed with a variety of weapons, such as torpedoes for destroying surface ships and other submarines and Tomahawk cruise missiles for striking targets on land. They have a crew size of 190 [11].

Figure 2. Major combat units by military department

Source: Reference [11].
[a] Following the source reference, we depict the force structure for the Department of the Navy (DON) to reflect the high degree of integration between its two component services and the fact that nearly all large Navy and Marine Corps units include personnel from both services.

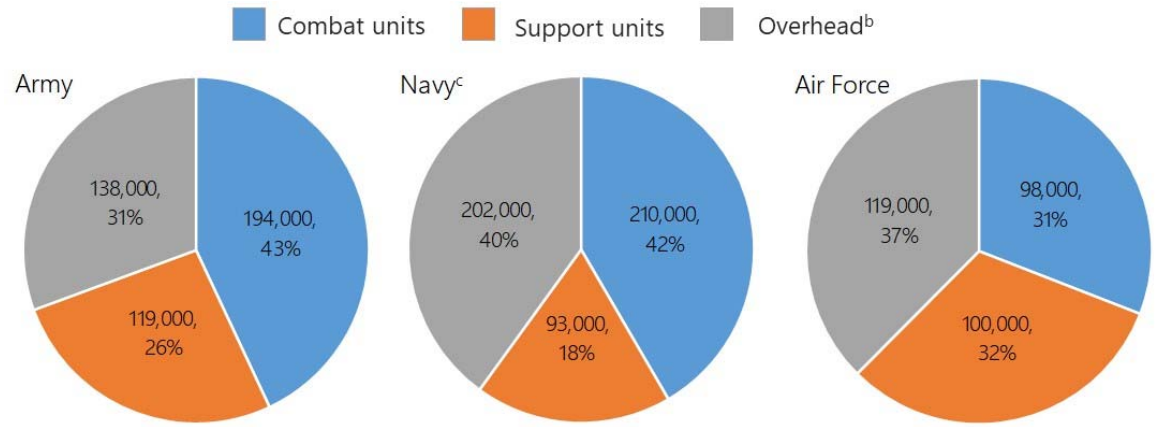
These two types of major combat units also require different support units and account for different shares of each service's administrative units. An independently deploying attack submarine has no specifically identified support units[6] and, in terms of manpower, is the Navy's smallest combat unit. An Armored BCT has brigade support and engineering battalions, which include several forward support companies as well as medical, distribution, military intelligence, and combat engineer companies. It is the Army's largest major combat unit in manpower terms. Taking all these differences into account, [11] estimates that an Army BCT has a total of 17,450 associated manpower positions: the 4,200 in combat units, plus 9,090 in support units and 4,160 in administrative units. Navy attack submarines, in turn, have only 390 associated manpower positions: the 190 in combat units, plus 50 in support units and 150 in administrative units.[7]

[6] [11] did not identify any specific support units, but it did identify personnel associated with support units. There was no explanation provided for this discrepancy.

[7] For both types of major combat units, the "overhead" personnel and costs are associated with the major combat unit's share of administrative or overhead activities [11].

Aggregating to the department level, Figure 3 shows how active component military personnel are distributed across unit types for each military department. The first thing to note is that positions in combat units do not constitute a majority in any department, and, in the USAF, the share of active-component positions in combat units is only 31 percent. Then, among noncombat units, the DON's share of manpower positions in overhead or administrative units is relatively large: 67 percent of noncombat units for the DON compared to about 53 percent for the Departments of the Army and the Air Force.

Figure 3. Projected average distribution of AC military personnel by unit type and military department, 2017 to 2021[a]

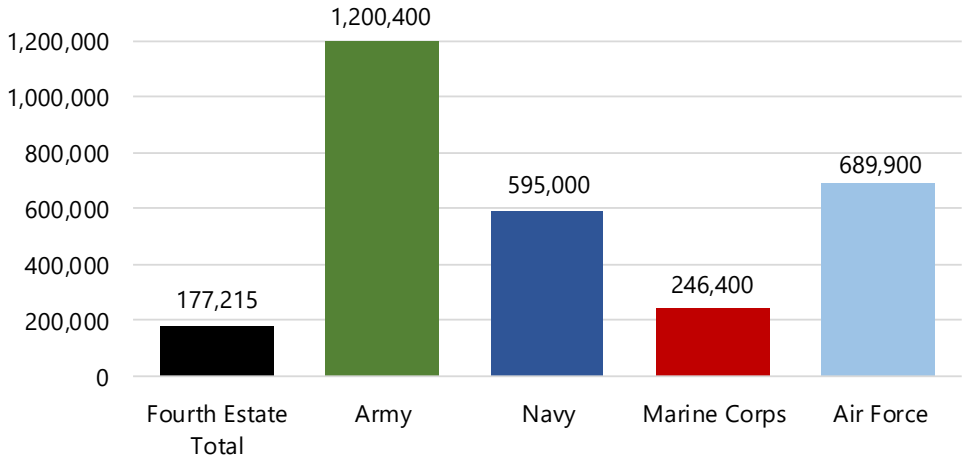


Source: Data from reference [11].
[a] Based on data from the Department of Defense's 2017 budget request.
[b] "Overhead" refers to administrative units, some of which are associated with the Fourth Estate. It also includes personnel not assigned to any unit, such as those in the individuals account.
[c] The source reference [11] reports these data for the DON because the support and administrative structures of the Navy and Marine Corps are too integrated to facilitate service-level calculations.

Turning to the Fourth Estate, all of its units are, by definition, overhead or administrative units. The other structural feature that distinguishes Fourth Estate organizations from the military services is their relatively small size. Using FY 2020 estimates from the April 2019 *Defense Manpower Requirements Report* [1], Figure 4 shows that, with a total requirement of 177,215 positions, the Fourth Estate as a whole is smaller than the smallest military service. Within the Fourth Estate, organization size varies substantially, ranging from a total requirement of 31 positions in the smallest component (the Defense Test Resource Management Center) to 27,581 positions in the largest (the Defense Logistics Agency). We calculate that the average size of Fourth Estate components is 6,329 positions and that more than 60 percent have more

than 1,000 positions.[8] Thus, although these organizations are small compared to the services, they are generally large compared to companies in the private sector, where businesses are considered large if they have 1,000 or more employees.

Figure 4. FY20 military and civilian requirements in the Fourth Estate and the military services

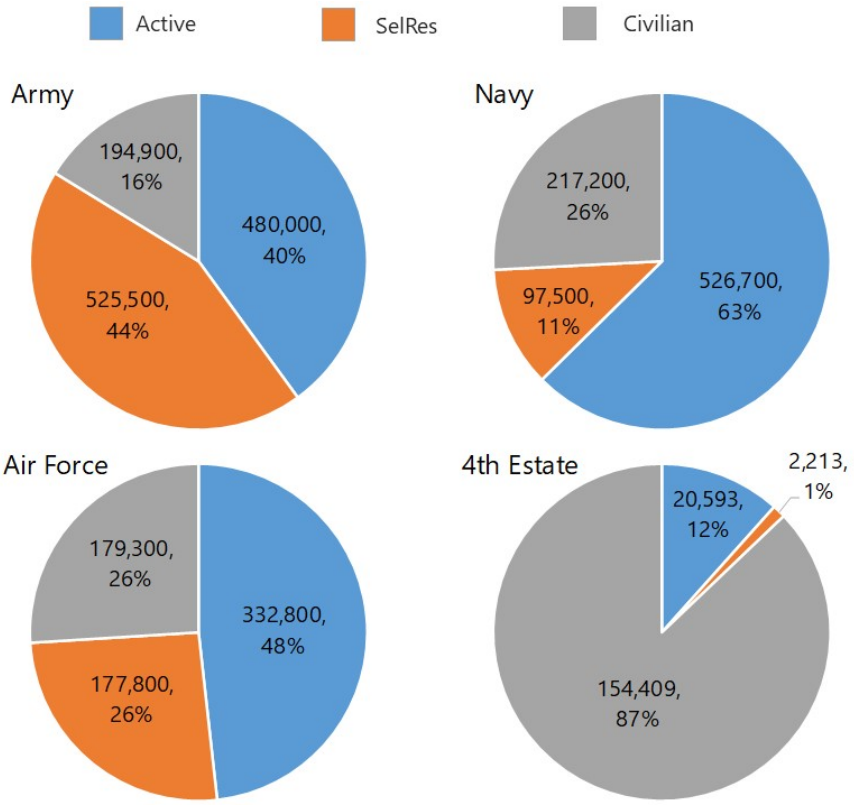


Source: Tables 1-1 and 2-4 in reference [1].
Note: Military positions are double-counted, appearing in both the service and Fourth Estate manpower totals. Civilian positions do not include contractors.

Force structures and missions define not only the numbers of positions required to deliver different capabilities but also the types of positions. First is the military-civilian mix of each workforce. Figure 5 shows the workforce mix of each military department and the Fourth Estate. Unsurprisingly, the Fourth Estate's civilian share of requirements is large compared to the services' civilian shares. But the data also show that, within the services, there is substantial variation not only in the civilian shares, but also in the active-reserve mix. The Army has a relatively small civilian share and a relatively large reserve share. The Navy and Air Force have the same civilian shares, but different active-reserve distributions.

[8] Organization-level data are provided in Table 1 in Appendix A.

Figure 5. FY20 manpower mix in the Fourth Estate and the military departments



Source: Tables 1-1 and 2-4 in reference [1].
Note: Military positions are double-counted, appearing in both the service and Fourth Estate manpower totals. Civilian positions do not include contractors.

Finally, positions also differ in terms of the levels of experience and the types of skills they require of the people who will fill them. For military positions, experience level is indicated by rank, and skill type is indicated by a primary military occupation and, in some cases, additional specialty requirements. For civilian positions, experience is indicated by GS or WS and positions are defined by function codes. Some are general and would be in nearly all Fourth Estate organizations (e.g., admin). Others are more specific and would be concentrated in specific organizations (e.g., finance).

Generate common manpower outputs

The differences in force structure matter for MM not only because they generate different numbers and types of required positions but also because they can generate differences in the processes that underlie MM functions. Regardless of all these differences, however, MM generates the same two primary outputs for all DOD components:[9]

- **Unit-specific manpower *requirements.*** Manpower requirements are the minimum human resources required for a unit to achieve its mission. They are driven by workload and defined in terms of the functions, skills, and grade levels required to perform specific tasks and duties. Each manpower requirement is specified as a full-time equivalent and each equates to a specific civilian position or military billet. Unit-specific requirements are determined without regard to budget constraints and are aggregated to the organization level to create an unconstrained estimate of the total required manpower. Because some requirements are not ultimately funded, manpower requirements to do not send an actionable demand signal to the personnel management system.[10]
- **Unit-specific manpower *authorizations.*** Manpower authorizations, also called manpower spaces, are approved military or civilian positions to which personnel may be assigned for the purpose of performing position-specific tasks. Like manpower requirements, they are defined in terms of the functions, skills, and grade levels required to perform the tasks. Unlike requirements, authorizations are always funded and, while total authorizations may not exceed total requirements, because of budget constraints, total authorizations may be less than total requirements. Manpower authorizations provide the official demand signal to the personnel management system.

Thus, returning to the purpose of MM, [10] defines it as the "means of manpower control to ensure the most efficient and economical use of available manpower." This appealingly succinct definition combines the technical efficiency feature of manpower requirements with the financially constrained feature of manpower authorizations.

[9] These definitions are an amalgamation of the definitions from the DOD and service-specific manpower management guidance (i.e., DODD 1100.4, AR 570-4, MCO 5311.1E, OPNAVINST 1000.16L, AFI 38-101, and CJCSI 1001.01B].

[10] See Appendix B for a definition of the personnel management system and how it is different from the manpower management system.

Core functions of MM

In this subsection, we describe the main MM functions that create manpower requirements and manpower authorizations. Specifically, we call out three core functions: manpower requirements determination (MRD); manpower programming and budgeting as part of the DOD Planning, Programming, Budgeting, and Execution (PPBE) process; and the allocation of total manpower authorizations to commands and subcommands.

Unless otherwise noted, the descriptions and definitions in this subsection are an amalgamation of those provided in the DOD-level and service-specific MM policies documents identified earlier [3-7].

MRD

MRD is the set of processes that creates unit-specific manpower requirements. MRD processes are generally industrial or business engineering processes that translate desired unit capabilities into work that will be performed by personnel filling specific numbers and types of billets or positions. Although MRD does not take budget constraints into account, a prime objective is the efficient use of manpower resources. Key features of MRD processes—inputs, methods, and timing/frequency—vary by the type of manpower requirement being determined.

Types of manpower requirements

The different types of manpower requirements are defined along two main dimensions. The first dimension is force structure, as described in the previous section. MRD processes for operational units, comprising combat units and support units, are generally separate from MRD processes for force-generating units, comprising administrative and overhead units.[11] The second dimension is personnel type. For each unit, the MRD process must specify the appropriate workforce mix of active and reserve billets and civilian and contractor positions.

The military services and the joint staff also have other kinds of requirements. First, most service and joint staff units have both peacetime and wartime (also known as mobilization) requirements. Additional types of manpower requirements for the services also include external or outside requirements for military manpower (e.g., joint staff and Fourth Estate requirements), manpower requirements associated with major new acquisitions, and

[11] Each service uses different words to describe these kinds of units in their MM guidance: (1) Army—operating and generating units; (2) Navy—fleet and shore requirements; (3) Marine Corps—operating forces or fleet Marine forces and headquarters and support activities; and (4) Air Force—operations, maintenance, and combat support functional areas.

requirements for the individuals account (IA) (e.g., students and trainees and personnel in transient, patient, prisoner, and holdee (TPPH) status).

MRD variables

There are three general categories of variables associated with MRD processes. The first is broad policy guidance. DOD policy stipulates that "manpower requirements are driven by workload and shall be established at the minimum levels necessary to accomplish mission and performance objectives" [3]. Following from this overarching policy directive, additional DOD polices,[12] and related component-specific policies, provide guidelines and parameters within which to determine minimum peacetime and mobilization requirements, and how to achieve the appropriate workforce mix based on definitions of work that is military essential or inherently governmental.

The second category of MRD variables includes those used to translate unit-specific missions into the types of billets or positions that must be filled in order for specific functions and tasks to be performed and desired operational capabilities and services to be delivered. For operational units, these variables are determined by established military doctrine and concepts of operation and the expected risk or threat level. For force-generating units, these inputs are defined in terms of efficient business processes and organizational structures. For both types of units, they are determined by the relevant underlying technologies.

The final category is technical factors that calculate the amount of work associated with each task and the amount of manpower needed to do it. The components' MM documents define the amount of work in terms of approved or directed "workloads" needed to accomplish a given unit's mission under specified conditions. They then describe a variety of variables used to determine the number of billets or positions required to perform the workload (e.g., various availability factors, staffing standards, crew ratios, and workload allowances).[13]

MRD studies and methods

MRD studies can be about updating unit requirements based on new values for the relevant variables, or they can be about updating the variable values themselves. Depending on the situation, they generally include some or all of the following basic steps:

1. Create a baseline based on current manpower requirements.
2. Validate the unit's mission.

[12] See DODI 1100.22, *Policy and Procedures for Determining Workforce Mix* [12].

[13] An additional reference for this discussion is Army Regulation 71-32, *Force Management: Force Development and Documentation Consolidated Policies* [13].

3. Evaluate the functions and tasks associated with the mission.
4. Validate manpower utilization.
5. Define, validate, and project workload.
6. Develop or apply a workload-manpower relationship.
7. Compute new estimate of manpower demand.
8. Determine optimum manpower mix.
9. Consider potential new organizational structures.
10. Document results.[14]

Underlying these steps are various methods and tools. Some are essentially descriptive and entail only basic counting, while others entail the application of sophisticated mathematical and statistical techniques.

For example, part of step 5 is work measurement, or the collection of data on work-hours and production by a given work unit. A frequently used work measurement tool is work sampling, which entails the application of statistical sampling theory and techniques to the study of work systems. Specifically, the characteristics of the sampled, or observed, work done are used to produce estimates of the total amounts of work and types of activities done. In other cases, it is possible to do work measurement by observing all the work done by a unit, so that no statistical techniques are required. Similarly, step 6 generally entails developing manpower models, which are mathematical equations that describe the relationship between workload variable(s) and manpower requirements. In many cases, which type of method to use depends on whether the study is for one unit or for multiple similar units. It also depends on the nature of the output. The output of some types of units is more difficult to quantify than that of other units.

The Army's distinction between staffing standards and staffing guides helps to illustrate the nature of these methodological differences. According to [4], staffing standards are used to develop manpower requirements through work measurement, normally at more than one location, using regression analysis and other statistically valid procedures. Staffing guides, however, provide manpower "yardsticks" that indicate numerical manpower requirements based on workload indicators, and usually provide the information in tabular format.

[14] These steps are summarized from the Army's guiding MM document [4], but each appears in different ways in other services' guiding documents and MRD manuals. See references [14] [15] [16]

Timing and frequency

DOD policy does not dictate a specific schedule for component-level MRD. Instead, it directs that "changes in manpower shall be preceded by changes to the programs, missions, and functions that require manpower resources" [3].

Consistent with this broad DOD guidance, the DOD components provide implementation guidance indicating that manpower requirements should be redetermined if there is a change to any of the key MRD inputs. These component-specific policies get implemented as regular or cyclical reviews of missions, operational concepts, organizational structures, specific functions, and relevant technologies to ensure that any changes to these variables are translated to changes in manpower requirements. These review cycles are usually 1 to 3 years long. MRD studies must also be done when new organizations are established or when major new weapon systems are acquired.

Finally, manpower requirements are reviewed and updated annually as part of the manpower programming and budgeting function.

Manpower programming and budgeting

The manpower programming and budgeting function is the first step in turning unit-specific requirements into unit-specific authorizations. Specifically, reference [3] stipulates that DOD military and civilian manpower resources "shall be programmed in accordance with validated manpower requirements, and within fiscal limits and acceptable levels of risk identified in Defense planning and programming guidance." This MM function is embedded in the more comprehensive PPBE process. PPBE is the process used to create DOD's portion of the President's annual budget request to Congress.

The Congressional Research Service (CRS) describes it as follows:

> Planning, Programming, Budgeting, and Execution (PPBE) is an annual Department of Defense (DOD) process for allocating resources. It serves as the framework for DOD civilian and military leaders to decide which programs and force structure requirements to fund based on strategic objectives. [17], p. 1]

DOD Directive 7045.14 [18] states that the objective of PPBE "is to provide the DOD with the most effective mix of forces, equipment, manpower, and support attainable within fiscal constraints." Thus, manpower programming and budgeting are the processes that inform the manpower portion of each DOD component's budget and, in aggregate, of the overall DOD budget. These MM processes are analogous to the processes for procuring the weapon systems

used by combat units and the office and other equipment used by DOD agencies and field activities.[15]

Authorization and allocation

Authorization and allocation is the second, and final, step in turning manpower requirements into manpower authorizations. It is the top-down process by which programmed military endstrength and total civilian full-time equivalent work-years are allocated from the component level to the command level and, ultimately, to the unit level.

Because budget constraints typically mean that requirements are not fully funded, allocations are made based on component-level priorities set by DOD and component leadership. They are also guided by DOD and component-specific policies that define the relationship between requirements and authorizations. In particular, authorizations must be based on validated, approved requirements and must match in terms of functions, skills, and grade levels. In addition, authorizations cannot exceed requirements at specific levels of aggregation, such as the unit, the program element, and the manpower type.

This step also includes in-year modifications or reallocations of manpower resources. These changes are considered "zero-balance" changes because they realign existing manpower authorizations to meet changing conditions or mission needs, but they do not affect the total number of positions.

Although authorization and allocation is the last step in turning manpower requirements into manpower authorizations, it is important to note that results of this step in one year feed back into the programming and budgeting function of the next year as part of the execution review. This feature captures the continuous nature of the overall MM process.

Supporting functions

In addition to the three core MM functions, there are four supporting MM functions. The first two will be discussed in more detail in later sections of the report. Brief descriptions of these two supporting functions follow:

- **MM policy development and oversight.** DOD sets overall MM policy in [3], and part of that policy is to assign component heads with responsibility for "prescribing concepts for implementing fiscal year guidance and manpower management policy" in their organizations. The component heads are also responsible for ensuring that the

[15] See Appendix C for a detailed description of the PPBE process.

DOD polices are carried out as members of their organizations perform MM functions. Thus, every component assigns additional oversight roles to specific internal organizations that approve or validate MM function outcomes at various levels. The component-specific organizations and their roles will be covered in more detail in the section on who performs MM across DOD.

- **Documentation.** Each component has specific formats and data systems for documenting requirements and authorizations for different types of manpower. In some cases, the component-specific systems have to be able to interact to capture external requirements and authorizations.

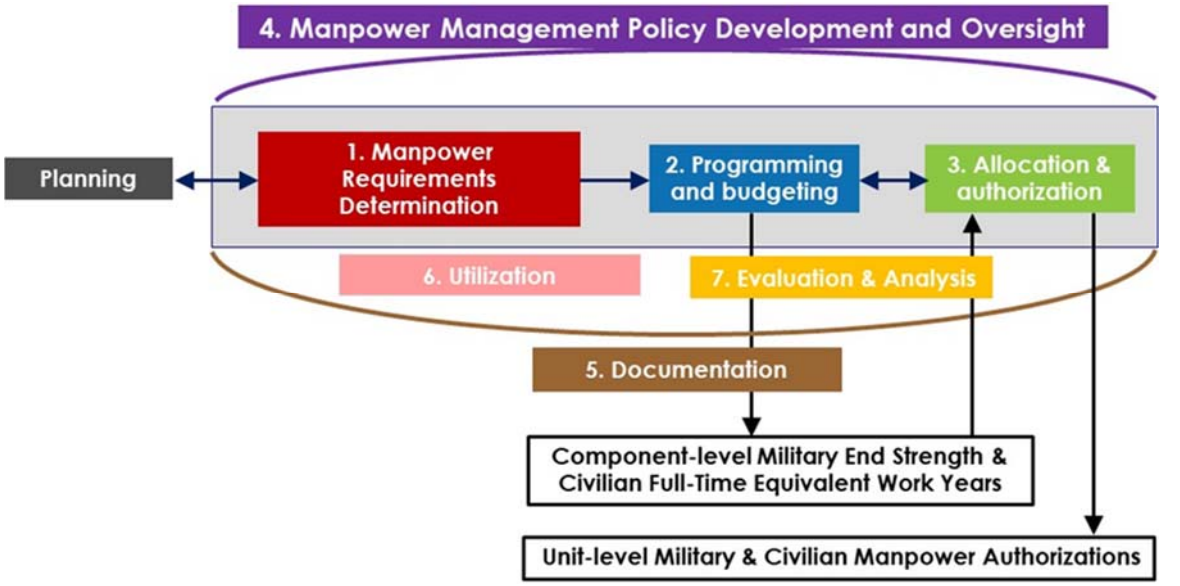
The second two supporting functions will not be covered in more detail later, but we identify them here because they are explicitly called out as key MM functions in the Army MM guidance [4] and are addressed implicitly in the MM guidance for the other services:

- **Utilization.** The different types of personnel for which manpower requirements and authorizations exist (i.e., active and reserve military personnel and civilian personnel) are governed by different laws and policies specifying how and when they may be used. Utilization captures many different actions in the core MM functions that ensure that personnel are properly employed. For example, the availability factors that are used in MRD studies vary by personnel type.
- **Analysis and evaluation.** The Army MM guidance describes this supporting function as the "continual analysis and evaluation of missions, priorities, guidance, constraints, and available resources" that form the basis of MM [4].

Summary

This section described the common purpose and seven functions of MM across the DOD. Figure 6 shows how all the functions work together to define the component-specific demand signals for manpower. In particular, people responsible for performing each function must understand how the outputs they produce both inform and are informed by the outputs produced by those performing the other functions.

Figure 6. Seven core and supporting MM functions and key MM outputs



Source: Authors' summary of MM functions across DOD.

Which KSAs Are Needed to Perform MM Functions?

In this section, we begin to identify the KSAs needed to perform the core and supporting MM functions described in the previous section. It was beyond the scope of this study to independently develop a comprehensive list of MM KSAs or competencies through a full competency assessment, so we used our understanding of MM functions to select specific KSAs from two existing sources: the DOD Strategic Workforce Plan for FY 2016 through FY 2021 [19] and the training plan for members of the Army's Manpower and Force Management Civilian Career Program (CP26) [20]. Appendix D contains descriptions of all KSAs.

To lay the foundations for our assessment of the potential for standardizing MM training and education, we grouped the KSAs into categories and mapped them to MM functions. This process is explained in the next subsections and its results are documented in Table 1.

KSA categories

To develop our KSA categories, we considered two main factors. The first factor was the specificity of the KSA—to what extent is a given KSA specific to MM, and to what extent is it specific to MM in a particular component? The second factor was how the KSA might be acquired. Is it acquired through formal training and education or on-the-job experience, and are the learning opportunities available outside the DOD setting, either in private institutions or in private-sector jobs? Based on these considerations, we created three KSA categories:

1. **Generic KSAs.** This category includes general and technical KSAs that are broadly applicable outside both the DOD and the MM contexts. Thus, they can be acquired at most private educational institutions before joining a military service or being hired by a DOD component, and many would be difficult to learn on the job. They are equally relevant across all DOD components.
2. **MM-related KSAs.** This category includes knowledge of the DOD-level policies that govern MM and the DOD-level processes that are needed to perform the different MM functions. It also includes knowledge of joint manpower policies and processes that must be known by people performing manpower functions in the other components. It is unlikely, though not impossible, that this knowledge could be acquired at private educational institutions or in private-sector positions outside the defense industry.

Unlike the generic KSAs, the MM-related KSAs could be learned on the job, but, like the generic KSAs, they are equally relevant across all DOD components.

3. **Component-specific KSAs.** This category includes knowledge of the component-specific policies that govern MM and the component-specific processes that are needed to perform the different MM functions. Compared to MM-related KSAs, it is even less likely that these KSAs could be acquired outside the DOD setting, and it may be that component-specific training is necessary. By definition, these KSAs are not relevant across all DOD components.

There is some overlap across categories, especially the MM-related and component-specific categories, because the underlying principles are generally the same across components, though the context and application are not. As a result, it is likely that someone who is well grounded in basic MM principles due to component-specific training or experience would find it easier to learn the specifics of another component than would someone starting from scratch.

Mapping KSAs to MM functions

This mapping is based on our reading of the MM guiding documents and the descriptions from reference [19], which are duplicated in Appendix D. The point was to determine which KSAs of MM are suitable for standardized training and which may not be.

Summary

Sorting the KSAs by category and mapping them to MM function reveals a few findings that may inform efforts to standardize training.

- First, most skills, regardless of category, apply to MRD and then planning and budgeting. This is consistent with the combined technical and bureaucratic nature of both functions. Personnel performing these functions must have both technical skills and knowledge of DOD and component-specific policies and processes.
- Second, personnel performing the policy development and oversight function must know both DOD and their own component policies, but they don't necessarily need strong technical skills.
- Third, documentation is very component-specific.

These findings are, however, only suggestive until a truly comprehensive effort and full competency assessment can be completed.

Table 1. KSAs by KSA category and MM function

KSA	7 MM functions[a]						
	1	2	3	4	5	6	7
Generic KSAs							
Statistical & quantitative analysis techniques	✓						✓
Efficiency review & productivity programs	✓						
Work measurement	✓						
Cost-benefit analysis		✓					✓
Computer & software skills	✓	✓	✓		✓		
General writing skills	✓	✓	✓	✓	✓	✓	✓
Technical writing skills	✓	✓	✓				✓
MM-specific KSAs							
Manpower Policy and Guidance (Executive/DOD)	✓	✓	✓	✓		✓	✓
Manpower Allocation and Utilization Control Guidelines	✓		✓	✓		✓	
Planning, Programming, Budgeting, and Execution		✓		✓		✓	
DOD Program Budget Guidance Development		✓		✓			
Commercial Activities Program and Other Contracting Out Programs	✓	✓		✓			
Manpower Allocation Principles and Policies			✓	✓			
Component-specific KSAs							
Mission/Functions, and Organizational Structures	✓	✓	✓	✓	✓		✓
Policies and Programs to Establish, Change, and Formalize Missions, Functions, and Organizational Structures	✓	✓	✓	✓			✓
Force Structure Analysis and Approval Process	✓	✓			✓		✓
Management Information and Workload Reporting Systems	✓				✓		✓
Manpower Allocation Rules and Workload Factor Utilization	✓		✓			✓	
Budget Preparation and Submission Procedures and Processes		✓		✓			✓

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KSA	7 MM functions[a]						
	1	2	3	4	5	6	7
Interrelationships of Force Structure, Manpower, Equipment, Budget, and Authorizations		✓		✓			
Organizational Program Budget Document Development and Processing		✓		✓			
Manpower Requirements Determination Programs	✓			✓	✓	✓	✓
Requirements Determination Process	✓						
Manpower Requirements Determination for Operational Units	✓		✓		✓		
Manpower Survey Program	✓						
Staffing Guide Maintenance and Application	✓		✓		✓		
Authoritative Manpower Systems	✓	✓	✓	✓	✓	✓	✓
Policies and Procedures for Position Conversions, Grade and Specialty Code Changes, and Special Skill Requirements	✓		✓		✓	✓	
Force Development Interrelationships Among Organizational, Force, Systems, and Documenting Integration	✓	✓		✓	✓		
Development Policy, Programs, and Processes, Including Analytical Procedures	✓		✓				✓
Force Design Update (FDU)	✓	✓		✓			✓

Source: Authors' representation and interpretation of KSAs identified in references [19-20]
a The MM functions identified by number follow:
1. MRD
2. Manpower planning and budgeting
3. Authorization and allocation
4. Policy development and oversight
5. Documentation
6. Utilization
7. Analysis and evaluation

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Who Does MM Across DOD?

The next step in determining whether training can be standardized is to look at service-specific MM organizational structures and associated MM personnel. This will help determine who does MM across DOD, what type of training they get, and whether there are training gaps.

MM organizations

We begin by reviewing the organizations that are responsible for the three core MM functions plus the policy development and oversight supporting function. Again, due to lack of guiding documentation for the Fourth Estate components, we focus on the military services, drawing primarily from the sections of their MM policy documents that assign roles and responsibilities. Table 2 summarizes the results of this information collection effort. In general, the organizational structure of each MM function in each service is consistent with the service's overall functional and hierarchical structures.

MRD

Policy development and oversight for the MRD function is generally assigned to higher headquarters organizations in charge of manpower and personnel issues. In addition to developing and promulgating MM policies, a key role for these organizations is reviewing manpower requirements and authorization documents for compliance with both policy and strategic guidance. These organizations are primarily located in the offices of the service chiefs of staff and are headed by deputies.

At the implementation level, each service has created an organization that is responsible for developing MRD methods and tools, and also does MRD for operational units in coordination with appropriate functional area leaders. These MRD organizations also coordinate and validate MRD studies for force-generating units that are actually carried out by relevant functional area organizations. The MRD organizations usually have two-dimensional matrix structures, in which the first dimension corresponds to the service's organizational structure and the second corresponds to different functional aspects of MRD (e.g., carrying out studies and developing models and tools). Because of their roles in both doing MRD and coordinating and validating studies by other organizations, the MRD organizations appear in both the MRD and the policy and oversight cells.

Table 2. Organizations responsible for core MM functions plus policy development and oversight by military service

Service	Core MM function 1: Requirements determination	Core MM function 2: Programming and budgeting	Core MM function 3: Authorization and allocation	Policy development and oversight
Army	• USA Manpower Analysis Agency (USAMAA) • Major Commands and Direct Reporting Units	• ASA, Financial Management & Comptroller (ASA(FM&C)) • Deputy Chiefs of Staff (DCSs)	• Admin Assistant to the Secretary of the Army • DCS Personnel (G1) • Major Commands & Direct Reporting Units	• ASA, Manpower & Reserve Affairs (ASA(MR&A)) • USAMAA
Navy	• Navy Manpower Analysis Center (NAVMAC) • Manpower Budget Submitting Offices (BSO)s	• Resource Sponsors (RSs) • Commander, Fleet Forces Command (USFFC) • Manpower BSOs	• Manpower BSOs • Type Commands (TYCOMs)	• Deputy CNO (Manpower, Personnel, Training and Education) (CNO (N1)) • OCNO, Total Force Requirements Division (OPNAV N12)
Marine Corps	• Deputy Commandant (DC) for Combat Development & Integration (DC, CD&I)	• DC for Programs and Resources (DC, P&R) • DC for Manpower and Reserve Affairs (DC M&RA)	• DC, CD&I • DC, M&RA	• DC, CD&I • DC, M&RA
Air Force	• Manpower Analysis Agency (AFMAA) • A1M Staffs • Major Command Manpower & Organization (MAJCOM/A1M)	• Program Development Division (AF/A1MP)	• A1M Staffs • MAJCOM/A1Ms	• Directorate of Manpower, Organization & Resources (AF/A1M) • AFMAA

Source: Derived from the Roles and Responsibilities sections of the services' MM guidance (references [4] [5-7])

Programming and budgeting

Organizations responsible for the manpower programming and budgeting function vary across the services. For the Army and the Marine Corps, this function is led by headquarters-level organizations that are parallel to the personnel organizations that are responsible for MM policy development and oversight. For the Navy, manpower programming and budgeting responsibilities are distributed more along functional lines to specific sponsors. Finally, in the Air Force, this function stays within the manpower and personnel organization.

Authorization and allocation

The authorization and allocation function is done at the command level by manpower organizations within command staffs.

MM workforces

Next, we turn to define who is performing MM functions within these organizations across DOD. Although a seemingly straightforward task, those performing MM functions in the department are often not clearly defined and often do not have manpower-specific titles or identifiers. For example, while enlisted personnel perform manpower functions in some capacity throughout the Air Force, Navy, and Marine Corps, only the Air Force has a specialty code for enlisted manpower personnel. Similarly, while the Marine Corps and Army have Military Occupational Specialties (MOSs)/Functional Areas for officers who are considered manpower and force management professionals, it is more difficult to determine which Navy and Air Force officers are performing MM functions. In this subsection, we describe the designators/titles that signify personnel performing MM functions. Table 3 indicates manpower-specific identifiers by service and personnel type (civilian, enlisted, officer).

Table 3. Manpower-specific identifiers by service and personnel type (civilian, enlisted, officer)

Personnel type	Army	Navy	Marine Corps	Air Force
Civilian	CP26	No identifier	No identifier	No identifier
Enlisted	N/A	No identifier	No identifier	AFSC 3F3X
Officer	FA50	HR Officer	MOS 0102 & 8840	AFSC 38FX

Source: SME discussions.

DOD civilians

Civilians perform MM functions in all four services and throughout the Defense Agencies and Field Activities (collectively known as the Fourth Estate). There is no Office of Personnel and Management (OPM) occupation field dedicated to civilians performing MM functions in DOD, however. Per our literature review and SME discussions, civilians performing manpower functions are primarily in the OPM occupational series 0343 (Management and Program Analysis). Other civilian personnel performing manpower functions belong to occupational series such as 0200 (Human Resource Management), 0301 (Miscellaneous Administration and Program Series), 0344 (Management and Program Clerical and Assistance Series), 1515 (Operations Research), and 0896 (Industrial Engineering). These occupation fields are not specific to personnel performing MM functions, however, and describe civilians with a wide range of skills working in a wide range of positions. Because there is no dedicated manpower occupation field, it is not possible to isolate DOD civilians performing MM functions simply by occupation code.

In addition to the occupational field, the services have other ways of designating their civilian personnel performing MM functions. First, the Army organizes and manages civilian manpower professionals in career program 26 (CP26). CP26 designates positions and not personnel, however. In other words, if an Army civilian working in CP26 moves to a new position in a non-manpower-related career program, they do not carry the CP26 designation with them. Air Force civilians performing manpower functions are part of the Air Force manpower career field and enterprise. There is no dedicated career field for manpower in the Marine Corps or the Navy. However, some civilians completing training programs in the Navy are given manpower titles. For example, civilians in the Navy who complete manpower training at US Fleet Forces are given the title of Shore Manpower Requirements Determination Analyst. There is no uniform way to identify civilian personnel performing MM functions across DOD, however.

Enlisted personnel

The Air Force is the only service with a designator for enlisted personnel performing manpower functions. Per SME discussions, the Air Force relies heavily on enlisted personnel to perform manpower functions and offers training targeted to enlisted personnel. SME discussions revealed that the Air Force uses enlisted personnel to perform manpower functions because they often have recent operational experience and knowledge of the work being performed in the field. Enlisted Air Force personnel who complete the requisite manpower training are awarded Air Force Specialty Code 3F3X.

Although the Air Force is the only service with a specialty code for enlisted personnel performing MM functions, the Navy and Marine Corps also use enlisted personnel to perform manpower functions. USMC SMEs indicated that enlisted personnel performing manpower functions typically have an MOS of Administrative Specialist (0111). SMEs from the Navy Manpower Analysis Center (NAVMAC) indicated that the enlisted personnel they use to perform manpower functions have a wide variety of ratings.[16]

Officers

In addition to civilians and enlisted personnel, all four services utilize officers to perform manpower functions to some extent, with many officers performing manpower oversight and policy roles. In the paragraphs that follow, we describe manpower-related activities of officers in the Army, Air Force, Navy, and Marine Corps.

The Army designates officers performing force management and manpower functions by functional area (FA) 50. According to Army SMEs, FA50 Force Management professionals turn doctrine and requirements into capabilities by allocating resources and fielding equipment to fill those requirements. They work on division and higher staffs, and work closely with combatant commanders to create mission-ready, campaign-quality expeditionary forces [21].

While largely relying on enlisted personnel and civilians to perform the manpower function, the Air Force also has a Force Support (38FX) designation for officers. SMEs noted that while there was previously a distinct manpower career track for officers, the career program became unsustainable in the mid-2000s due to declining numbers of officers entering the career field. They noted further that the Air Force has largely moved away from using officers to perform manpower functions and that 38FX officers tend to focus on personnel programs.

Next, we turn to identify officers in the Navy who perform manpower functions. Naval Postgraduate School (NPS) courses for HR Officers (HROs) indicate that HRO training is designed to provide information and understanding of the entire Navy Manpower, Personnel, Training, and Education (MPT&E) domain. The Navy HRO is described as having four core competency areas: (1) requirements, focusing on manpower and job task requirements, (2) management, focusing on personnel policy and management, (3) development, focusing on the training and education of personnel, and (4) recruiting, focusing on the recruitment of personnel into the regular and reserve components of the Navy. HROs who concentrate on requirements focus on manpower and job task requirements working for OPNAV N12, Navy

[16] We will discuss the ratings of the enlisted personnel performing manpower functions in the Navy and Marine Corps at greater length in the next section.

Manpower Analysis Center (NAVMAC), Fleet/Type Commander N1s, Budget Submitting Offices (BSOs), OPNAV N14, or financial management and budget analysis (OPNAV N10) [22].

In addition, Navy HROs can attend NPS to obtain a subspecialty in Manpower Systems Analysis (MSA), Operations Analysis, Human Systems Integration, or Financial Management. SMEs noted that the MSA degree is considered the manpower "deep-dive". MSA subspecialists are typically HROs who fill leadership and analytical roles in manpower, personnel, training, and education management [23].

Marine Corps officers performing manpower functions hold one of two MOSs, Manpower Officer (MOS 0102) or Manpower Management Officer (MOS 8840), the latter obtained by completing the MSA curriculum at NPS. The Marine Corps Manpower Management Officer conducts and participates in manpower-related studies to ensure that sound management techniques are used. The Manpower Management Officer assists the commander in developing, implementing, and assessing management policy through various studies and analyses [24].

DOD MM positions—most are civilians

Now that we have described the various titles that can represent personnel performing MM functions across the department, we turn to DOD function code data to explore the positions coded for manpower management or manpower management operations work. DOD function codes describe the work being performed in the position as opposed to the title of the person occupying that position. Manpower positions are identified as those billets that carry the Y240 (Manpower Management) or Y245 (Manpower Management Operations) function codes.

The Y240 code refers to authorizations that are performing manpower management work. Positions coded as Y240 execute oversight, direction, and control of subordinate manpower offices and centers in the following ways: by developing and issuing MM policies, by providing policy guidance, by reviewing and evaluating program performance, and by conducting or reviewing mid- and long-range planning, programming, and budgeting [19].

Positions coded as Y245 execute manpower operations typically performed by manpower offices, centers, and field operating agencies at all levels of the department. Manpower operations typically include assessing processes, procedures, and workload distribution; designing organizational structures; business process reengineering; validating workload and determining manpower requirements; and tracking, reporting, and documenting manpower numbers.

Using data from the FY 2016 Inherently Governmental and Commercial Activities (IG/CA) Inventory for the Air Force and Army, the Marine Corps February 2019 Authorized Strength Report, and the March 2019 Navy Billet Authorization File, we found that most manpower

positions are civilian in each of the services. The exception is the Marine Corps, where only 41 percent of the Y240 authorizations are civilian. Table 4 presents these data.

Table 4. DOD manpower management and MM operations: Workforce mix

Service	Y240					Y245					Grand total
	AC[a]	RC[b]	Civilian	Percent civilian	Total	AC[a]	RC[b]	Civilian	Percent civilian	Total	
Air Force	93	4	318	77%	415	13	25	285	88%	323	738
Army	128	0	1,037	89%	1,165	177	120	1,853	86%	2,150	3,315
Marine Corps	59	82	98	41%	239	119	2	156	56%	277	516
Navy	65	25	259	74%	349	200	62	1,008	79%	1,270	1,619
Total	345	111	1,712	79%	2,168	509	209	3,302	82%	4,020	6,188

Sources: Air Force and Army data are from FY2016 IG/CA Inventory, Marine Corps data are from February 2019 Authorized Strength Report, and Navy data are from March 2019 Billet Authorization File.
[a] Active component.
[b] Reserve component.

In addition, the Strategic Workforce Plan Report for FY 2016 through FY 2021 includes the Y240 and Y245 workforce mix for the Fourth Estate. The Fourth Estate's manpower workforce is also primarily civilian, with 89 percent of the Y240 and Y245 authorizations coded as civilian and only 11 percent coded as military [19].

Next, we used information from a recent RAND Corporation study on Air Force manpower engineering personnel as well as additional Marine Corps and Navy billet/structure data to better understand the DOD manpower workforce.[17] Finally, we asked SMEs about their MM workforce to complement our data analysis.

Air Force personnel at manpower organizations

To further explore the Air Force manpower engineering workforce, we used a recent RAND report [25] that draws on Air Force personnel data to summarize the workforce mix of the

[17] We were unable to obtain detailed Army billet data.

manpower engineering workforce in the Air Force Manpower Analysis Agency (AFMAA) and the Air Force's Manpower Requirements Squadrons (MRSs).[18]

The RAND report findings supported what we found in our SME discussions—specifically, that manpower work in the Air Force is largely performed by civilian personnel in the 0343 occupation series and by enlisted personnel with the 3F3X specialty code. This indicates that, of the 105 enlisted personnel at AFMAA and the MRSs, 97 (92 percent) have the specialty code of 3F3X, the majority between grades E-5 and E-7. Of the 146 civilians working at AFMAA, 120 (82 percent) are designated by the 0343 occupational series. In addition, of the 22 officers at AFMAA and the MRSs, 9 have the 38FX (Force Support) specialty code. These data are reproduced in Table 5.

[18] This is personnel data that includes civilians, enlisted, and officers in USAMAA and the MRSs, organizations whose focus is manpower.

Table 5. AFMAA and MRS inventories by personnel type

Identifier	Personnel type and paygrade								Totals	
Civilians										
Occupational series	GS-06	GS-07	GS-09	GS-11	GS-12	GS-13	GS-14	GS-15	Total	Percent
Mgt & Program Analysis (O343)	0	0	1	16	69	27	6	1	120	82%
IT Management (2210)	0	0	0	6	6	1	0	0	13	9%
Other	4	1	1	0	5	1	1	0	13	9%
Total	4	1	2	22	80	29	7	1	146	100%
Enlisted personnel										
AFSC	E-4	E-5	E-6	E-7	E-8	E-9			Total	Percent
Manpower (3F3X)	3	22	36	28	7	1			97	92%
Other	0	2	4	2	0	0			8	8%
Total	3	24	40	30	7	1			105	100%
Officers										
AFSC	O-1	O-2	O-3	O-4	O-5	O-6			Total	Percent
Force Support (38FX)	2	1	5	0	1	0			9	41%
Operations Research (61A)	1	2	3	0	0	0			6	27%
Other	0	0	1	1	4	1			7	32%
Total	3	3	9	1	5	1			22	100%

Source: Reference [25].

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Marine Corps and Navy manpower billets

Using detailed billet data from the Marine Corps and Navy authoritative manpower systems (Total Force Structure Management System (TFSMS) and Total Force Manpower Management System (TFMMS)), we examined billets coded for manpower functions across the Marine Corps and Navy (see Table 6). The civilian Y240 and Y240 billets were coded as we would expect, with the majority in the 0300 occupational series.

Table 6. USMC civilian manpower billets by MM function code

Occupational series and group title	Navy			Marine Corps		
	Y240	Y245	Total	Y240	Y245	Total
Human Resource Management (0200)	26	17	43	29	18	47
General, Administrative, Clerical and Office Services (0300)	216	778	994	48	119	167
Other occupations	30	231	261	21	19	40
Total	272	1,026	1,298	98	156	254

Source: TFSMS and TFMMS data pull (February 2019).

The military Y240 and Y245 billets, however, revealed a wide range of MOSs, designators, and ratings. Although the USMC has two MOSs that designate military personnel performing MM functions per the MOS manual (the Manpower Officer 0102 and the Manpower Management Officer 8840), the structure data reveal a wide range of Marine Corps MOSs that are coded with a manpower function (see Table 7). Only 36 percent of officer billets coded with a manpower function are coded for manpower MOSs. This indicates that many Marine officers who are performing manpower functions may not be trained in manpower and may not perform manpower functions as a collateral duty. Eighty-one percent of the enlisted billets coded with a manpower function are coded for administrative specialists. It is unclear what kind of manpower-specific training administrative specialists receive, if any. SME discussions revealed that enlisted Marines performing manpower functions have likely received on-the-job-training (OJT).

Table 7. Marine Corps Y240 and Y245 billets by MOS

MOS title	Active component			Active reserve			Total
	Y240	Y245	Subtotal	Y240	Y245	Subtotal	
Officer							
Manpower Officer	1	20	21	1	0	1	22
Manpower Management Officer	13	0	13	1	0	1	14
Personnel Officer	1	4	5	2	0	2	7
Other officers	27	6	33	22	1	23	56
Officer subtotal	42	30	72	26	1	27	99
Enlisted							
Administrative Specialist	10	81	91	30	0	30	121
Career Retention Specialist	0	5	5	9	0	9	14
Other enlisted personnel	5	0	5	9	1	10	15
Enlisted subtotal	15	86	101	48	1	49	150
Total	57	116	173	74	2	76	249

Source: Marine Corps February 2019 Authorized Strength Report.

Although the Navy largely uses civilians for its manpower workforce, it also uses active component military personnel to perform manpower functions. Using detailed position data from TFMMS, we examined which billets were coded for manpower functions in the Navy (see Table 8). Similar to the Marine Corps, only 37 percent of Navy officer billets were coded for Human Resource Officers—the officer designator we identified as most likely to have manpower training—while 63 percent were coded for designators other than HROs. With no dedicated enlisted rating for manpower, the enlisted billets coded with a manpower function carried a wide range of ratings.

Table 8. Navy Y240 and Y245 billets by designator and rating

Designator/rating	Active component			Active reserve			Total
	Y240	Y245	Subtotal	Y240	Y245	Subtotal	
Officer							
Human Resources Officer	31	24	55	5	8	13	68
Medical Service Corps Officer	3	34	37	0	0	0	37
Other officers	17	38	55	8	9	17	72
Officer subtotal	51	96	147	13	17	30	177
Enlisted							
Personnel Specialist	6	23	29	3	13	16	35
Yeoman	0	12	12	3	13	16	28
Other enlisted personnel	8	69	77	0	9	9	86
Enlisted subtotal	14	104	118	6	35	41	159
Total	65	200	265	19	52	7,168	336

Source: Navy from March 2019 Billet Authorization File.

The data imply that many personnel performing MM functions in the Marine Corps and Navy do not have manpower-specific designators and may be performing MM as a collateral duty. This could indicate a lack of trained manpower professionals to fill manpower positions, or perhaps it reflects the attitude that "anyone can do manpower," a sentiment that some SMEs indicated is prevalent outside the organizations that focus on MM. This can lead to personnel who have not been sufficiently trained performing MM functions.

MM Training

As noted earlier, the training for personnel performing manpower functions is not always evident. On-the-job training is used throughout DOD, at times as part of a more rigorous training program coupled with coursework and job assignments and at other times as the only method of training available. Table 9 designates the various methods of training by service and by personnel type.

Table 9. MM training across the services by personnel type

Personnel type	Army	Navy	Marine Corps	Air Force
Civilian	CP26 Training plan	OJT/USFF Program	OJT/Mobile training	METP
Enlisted	N/A	OJT	OJT	METP
Officer	FA50 coursework	NPS/HRCOE	MOS/NPS/Mobile training	OJT

Sources: [20-22, 24, 26-27] plus SME discussions.

For civilians, the Air Force offers the Manpower Enterprise Training Program, although the program is prioritized for its enlisted personnel. The Army offers the CP26 training program, while the Navy and Marine Corps rely on OJT and various internal training programs. For example, US Fleet Forces trains civilians to be Shore Manpower Requirements Determination Analysts. In addition, NAVMAC SMEs noted that they have developed an internal manpower specialist training program for their new employees. NAVMAC SMEs also indicated that they often hire retired personnel from the Bureau of Naval Personnel (BUPERS); given their experience, they can be quickly and easily trained to perform manpower functions.

For enlisted personnel, the Air Force is the only service to offer a training program for all enlisted personnel across the manpower enterprise. Enlisted personnel in the Marine Corps and Navy who perform manpower functions typically receive OJT.

For officers, the Army provides FA50 coursework and assignments, while the Marine Corps and Navy send officers to the Naval Postgraduate School for degrees in Manpower Systems Analysis. The Navy also has the Human Resources Center of Excellence (HRCOE), which serves to enrich the professional development and abilities of the Navy HR community [22]. Marine Corps officers also receive training through MOS coursework and through Manpower Officer Course Mobile Training Teams.

Next, we describe the training programs available throughout the services.

USAF Manpower Enterprise Training Program (METP)

The Director of the Air Force Manpower, Organization and Resources Directorate, AF/A1M recently established the METP and the METP Continuum of Learning (CoL) to

> ensure the manpower enterprise continually provides agile, timely, and relevant manpower capability to Air Force leaders. The METP provides a comprehensive strategy for the manpower enterprise to develop Manpower Airmen from cradle to grave to include Manpower Initial Skills Training (IST), Career Development Courses (CDC) specialty training courses, leadership courses, readiness training, certifications, continuing education opportunities, distance learning, and workshops. [28]

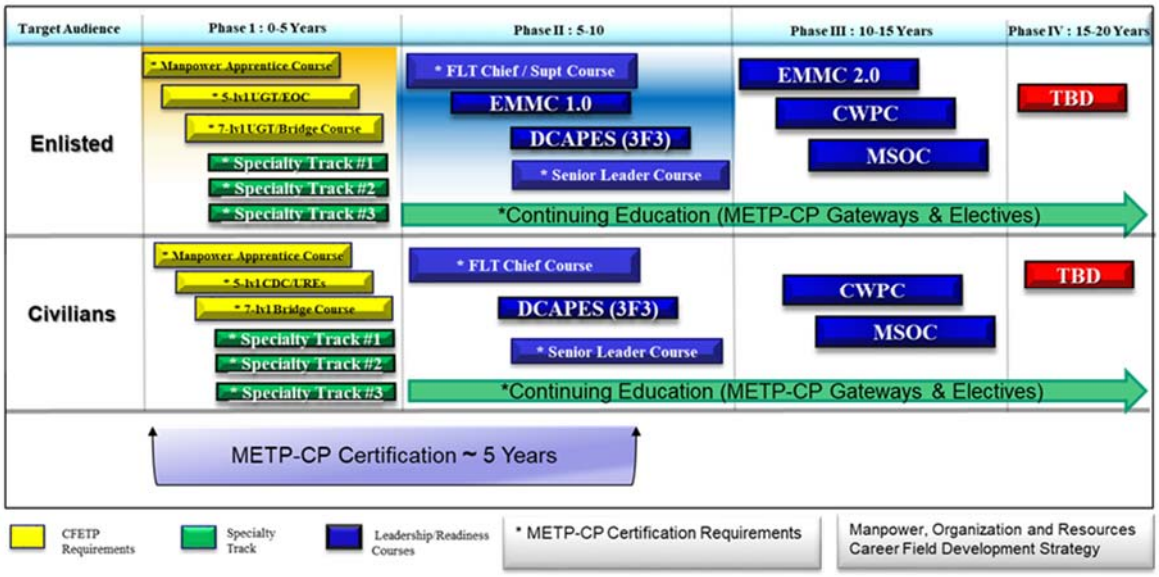
The impetus for developing this program was that, up to this point, manpower training was conducted only at initial entry into the career field. Thereafter, it was dependent on unstructured, inconstant training delivered (or not) at each manpower function across the Air Force. The stated goal, objectives, and anticipated outcome of the METP program follow:

- Goal – Provide a platform that all manpower professionals can leverage through training, education, and experience opportunities to systematically develop them, maximizing their potential effectiveness in executing manpower missions across the Air Force.
- Objectives – Improve performance, professionalize the manpower career field, and encourage continuous professional development through the METP CoL.
- Anticipated Outcome – Enhance the standardization of training and development, provide a broader and deeper knowledge of manpower members, improve the balance of technical and leadership development, and establish professional credentials for specific duty positions. [28]

According to [28], an important component of the METP is to balance technical skills and leadership development throughout a manpower career. Various training opportunities are available and programmed at specific intervals, as well as just-in-time training to allow development at critical points within a member's career.

A key element of the METP is certification. The METP Certification Program (METP-CP) synchronizes elements of the long-range METP CoL (depicted in Figure 7) with experience and deliberate training and education. Ultimately, a member may achieve certification in one or more enterprise focus areas. According to [28] and the accompanying attachments, manpower enterprise members (military and civilians) can be certified in one or more manpower enterprise focus areas, with potential additional specialty areas to be added later. The three focus areas currently offered are (1) Installation Manpower and Organization, (2) Management Engineering, and (3) Management Headquarters.

Figure 7. METP - Continuum of Learning



Source: Reproduced from reference [28].

In addition, the METP-CP plan discusses four gateways. The first three gateways create baseline criteria for training, initial competency, specific specialty training, leadership skills, experience, and career broadening, while the fourth gateway is a capstone project:

- **Gateway 1** – Manpower Competency Training; Initial Skills Training, OJT.
- **Gateway 2** – Specialty Track Courses; Installation Manpower & Organization Course, Management Engineering Course, Management Headquarters Course.
- **Gateway 3** – Leadership Track Course; Manpower Flight Chief Course, Manpower Senior Leader Course.
- **Gateway 4 –** Capstone Project is intended to incorporate real world issues in one of the three certification tracks. [28]

A key expectation and goal of the program is that certified members will be thoroughly trained and will function at a "high operational" level in key manpower enterprise activities (i.e., they will be well-rounded and deeply competent analysts). The Air Force believes that this should simultaneously enhance recruitment, placement, and talent management processes, which will provide a portfolio of airmen ready to assume key roles throughout the manpower enterprise.

Air Force SMEs also feel that stakeholders and customers will benefit from a more capable and confident manpower workforce [28].

The goal of the METP-CP is to provide a platform that all Air Force manpower professionals can leverage through training and education opportunities to systematically develop them, maximizing their potential effectiveness in executing manpower missions across the Air Force. The METP-CP culminates in accreditation of the member, recognizing his or her experience, professional development, and leadership in the manpower enterprise [28].

The courses are in-residence and, because of limited resources, students are selected to participate based on certain priorities. Reference [28] notes that priority will be given to enlisted personnel retraining into the career field in FY 2019 and beyond. The next priority will be given to civilians hired into the career field in FY 2019 and beyond and then to enlisted and civilians entering the career field prior to FY 2019.

Although the program is too new to evaluate, we found the plan for the Air Force METP to be the most structured among the manpower training programs we reviewed. The METP contains a starting point, career progression steps, and an end goal with the completion of an Air Force manpower professional certification. In addition to the skill levels and gateways, the curriculum for all the training is managed and maintained by the Air Force. One benefit of this system is that the Air Force has to the ability to tailor the learning experience for AF-specific needs.

Army – CP26 and FA50 training

CP26

Army civilian manpower professionals are managed and trained through CP26 (the Manpower and Force Management Career Program). The Army CP26 training program is structured to allow the individual to craft an individual training program. The CP26 program includes a wide array of educational courses, utilizing many courses through third parties. These courses include offerings from the Army's Force Management School, Learning Management System, Logistics University, and Finance School, as well as such non-Army entities as Syracuse University, NPS, and Graduate School USA.

The CP26 ACTEDS Plan [20] indicates some flexibility in how CP26 civilians might develop their manpower careers. The following opportunities are suggested:

- *On-the-Job Training (OJT)* is the primary means of training and development for CP26 careerists, who learn skills and duties aligned to their position descriptions.

- *Formal Classroom and Self-Directed Training* includes formal classroom training, courses, workshops, seminars, and conferences offered by Army, DOD, colleges and universities, training organizations, and professional associations.
- *Developmental Assignments* are temporary work assignments or details allowing careerists to gain competencies that they cannot easily obtain in their current positions. This training opportunity is usually a 90-to-120-day rotation to a new position or new organization.
- *Self-Development* is an employee-initiated activity to advance knowledge or skills through such activities as an Army distributed learning course, local college or university course, or membership in a professional organization or association.

The main drawback of this system is the minimal ability to customize and tailor courses for the Army manpower enterprise and the potential for skill set gaps that must be remediated though on-the-job-training. This can lead to personnel in similar positions and grades with wide-varying skill sets because of the semistructured training model used.

FA50

Army Force Management officers in FA50 are trained through a variety of courses, after which soldiers refine their skills during a duty assignment with the Joint Staff, a Combatant Command, or an Army staff organization. First, the Army's Force Management Orientation Course is designed for individuals who have little or no experience in DOD force management. This course provides basic concepts, techniques, and procedures using hands-on training with the tools and techniques necessary to apply principles of force management [29]. The curriculum introduces students to the skills required to analyze, validate, and standardize Army Force structure. Next, the Army's Manpower and Force Management Course underscores the strategic importance of manpower requirements determination for the Army's Generating Force. Another course required is the FA50 Qualifications Course. This 14-week course prepares FA50 officers and CP26 civilians to perform force management functions in the operational and institutional Army at the HQDA, division, corps, and Army Service Component Command (ASCC) levels [30].

Marine Corps

Marine Corps Manpower Officers must complete the Basic Manpower Officer Course to obtain the 0102 MOS. The Manpower Officer course is a 10-day course available to CWO3s through CWO5s, captains, majors, and senior civilians filling manpower positions at the major subordinate command (MSC) level. Master sergeants and master gunnery sergeants are authorized to attend with advanced approval. The course is held twice per year at Marine Corps

Combat Service Support School at Camp Johnson, NC. The end state of this course is to equip manpower officers with the knowledge and resources to effectively and adequately function at the MSC, regimental level, or at personnel administration centers (PACs). This course focuses on manning and staffing, force flow, TFSMS, individual augmentation, combat replacements, deployment process, and table of organization and equipment change requests [31].

Manpower Management Officers (MOS 0804) must complete the Manpower Systems Analysis (MSA) curriculum at NPS or an equivalent postgraduate degree from an accredited institution. The MSA curriculum at NPS, described in more detail in the Navy training section, is designed for US and international officers who will fill leadership and analytical roles in military manpower personnel, training, and education management. MSA subspecialists are responsible for developing and analyzing policies to ensure that the Navy, Marine Corps, and DOD are recruiting, training, utilizing, and retaining personnel in the most efficient and effective ways possible [32].

Manpower Management Officers who do not graduate from the NPS program must complete the following minimum course requirements:

- Multivariate data analysis
- Personal testing and selection
- Job analysis and personal training
- Manpower economics I and II
- Manpower/personnel policy analysis
- Manpower and personnel models
- MRD

Manpower Officer Course (MOC) mobile training

In addition, a Marine Corps Administrative Message (MARADMIN) released in January 2020 [27] announced MOC mobile training. The MOC was to be a nine-day course at Marine Corps Base Quantico for manpower personnel in the National Capital Region (NCR) that provides formal skills progression for restricted and unrestricted officers and staff noncommissioned officers as well as civilians. The MOC focuses on manpower functions at the major subordinate command G-1 level, enabling students to improve their understanding of the human resource development process, the global force management process, the Marine Corps planning processes, and human affairs resource management, among other things.[19]

[19] Although the MOC was scheduled to take place from March 23 through April 3, it is unclear whether this training took place.

Navy

Human Resources Center of Excellence (HRCOE)

The HRCOE at NPS offers coursework for HROs of varying experience levels. Established in October 2007 by the Chief of Naval Personnel, the HRCOE

> serves as a focal point for the lifelong learning for the HR community. Center activities and efforts—to enrich the professional development and abilities of the HR community—are aligned with the HR community mission of delivering HR expertise to define, recruit, develop, assign, and retain a highly skilled workforce for the Navy. [22]

Courses available at the HRCOE include the following:

- Human Resources Introductory Course (HRIC) - This course provides junior and newly accessed Navy HR Officers with an overview of the HR core competencies of development, management, recruiting and requirements. Students also gain an understanding of HR community career management and professional development opportunities.
- Human Resources Advanced Course (HRAC) - This course provides senior-level Navy HR Officers (commanders and commander selects) with an understanding of how HR core competencies influence Navy strategic planning, and how, as strategic leaders, they are to leverage those core competencies to meet the Navy's current and future challenges.
- Certification Preparation and Examination Program (CPEP) - The class consists of 10 weeks of distance learning classes followed by a four-day intensive in-classroom review. The location of the four-day in-classroom review changes each class, but it is usually conducted in HR Officer concentration areas, such as Washington, DC, and Millington, TN [22].

MSA curriculum

The NPS MSA curriculum discussed previously is available for Navy officers who will fill leadership and analytical roles in military manpower personnel, training, and education management. The MSA is open to all DOD and international officers. Officers enrolled in the MSA curriculum at the NPS undertake the challenge of an academic program designed to fill leadership and analytical roles in military manpower personnel, training, and education management. MSA subspecialists are responsible for developing and analyzing policies to ensure that the Navy and DOD are recruiting, training, utilizing, and retaining personnel in the most efficient and effective ways possible [32].

MSA is an analytical curriculum intended to develop skills necessary to perform and evaluate manpower analyses and manage the Navy's HR community of interest. As such, the curriculum emphasizes mathematical, statistical, and other quantitative and qualitative analysis methods. Successful completion of the curriculum yields an officer skilled in conducting manpower personnel, training, and education policy analysis [32].

The areas covered in the MSA curriculum include an understanding of manpower, personnel, training, education policy development, managing diversity, compensation systems, enlistment supply and retention models, manpower training models, manpower requirements determination processes, career mix, enlistment and reenlistment incentives, training effectiveness measures, and hardware/manpower trade-offs. Students gain familiarity with current models and methods of manpower analysis and economics as well as military manpower organizations, information systems, and issues.

US Fleet Forces Shore Manpower Requirements Analyst Program

In addition, US Fleet Forces Command (USFF) has developed an internal qualification program for its employees to earn designations as a Shore Manpower Requirements Analyst and as a Senior Shore Manpower Requirements Analyst. SMEs indicated that, when the course was piloted, USFF was the only BSO with dedicated, certified manpower analyst personnel, resulting in a lack of consistency in how other BSOs perform manpower studies. The goal was to ensure the same rigorous analysis on all shore manpower requirements. The qualification program begins by building expertise in essential policies, regulations, and business processes required for determining and managing manpower requirements. It culminates with mentorship and shadowing of a senior manpower analyst. The expectation is for each analyst to certify as a Shore Manpower Requirements Analyst within two years and as a Senior Analyst within three years [15].

NAVMAC and other BSO training

The Navy Manpower Analysis Center also has developed an internal Manpower Specialist Training program for new employees. Both of these training programs focus on job-related requirements internal to the commands. Outside of USFF and NAVMAC, individual Navy BSOs vary in the type of personnel used to perform manpower functions and how those manpower personnel are trained. For example, SMEs from Naval Sea Systems Command (NAVSEA) and Naval Supply Systems Command (NAVSUP) indicated that they rely on civilians who have largely received OJT, whereas Bureau of Medicine and Surgery (BUMED] SMEs indicated that they rely on officers with the MSA subspecialty for their manpower needs. SMEs from some Navy BSOs indicated a lack of training available for manpower personnel and spoke of relying heavily on OJT.

Summary

Although we've described training programs and courses offered throughout DOD, training gaps and inefficiencies exist. As described, the manpower training classes and programs that are available vary in terms of length, depth, and target audience. In some cases, there appears to be no training available. For example, some Navy BSO SMEs indicated that their personnel do not have manpower training programs available to them. Many people performing manpower functions receive OJT, which SMEs indicate ranges widely in terms of depth and quality. In some cases, several years of OJT are needed before manpower personnel achieve proficiency. Further, SMEs from the Fourth Estate Manpower Management Office estimated that, while about 60 percent of the manpower personnel in the DOD agencies and activities have some manpower training, the other 40 percent do not. A DOD-wide manpower training and education program would, at a minimum, guarantee that the same level of training is available for those in the manpower community and would serve to close the training gaps that currently exist in DOD.

MM Training Standardization

In this section, we discuss whether there is an opportunity to provide common training and education based on the overlap between KSAs required for manpower professionals. We also discuss SME perspectives on whether MM training and education could be standardized. We then discuss factors to consider when determining if training should be standardized. These factors include evidence of problems with MM outcomes based on the quality of the MM workforce, SME input on the benefits of standardization, and lessons from the Defense Acquisition Workforce.

Can MM training be standardized?

Overlap of MM functions and KSAs

Part of our tasking was to determine if the core competencies of MM were similar enough across components to allow for training standardization. To develop our KSA categories, we considered two main factors. The first factor was the specificity of the KSA: to what extent is a given KSA specific to MM, and to what extent is it specific to MM in a particular component? The second factor was how the KSA might be acquired. Is it acquired through formal training and education or OJT experience, and are the learning opportunities available outside the DOD setting, either in private institutions or private-sector jobs? Based on these considerations, we created the three KSA categories: generic, MM related, and component specific. Sorting the KSAs by category and mapping them to the seven MM functions reveal findings that may inform efforts to standardize training.

First, we find that the MM functions and generic and MM-related KSAs are similar enough across the components to allow standardized training. We also find that most of the skills are necessary for MRD and for planning and budgeting. The personnel performing these functions, regardless of component, must have both technical skills and knowledge of DOD and component-specific policies and processes. The component-specific KSAs (e.g., component-specific policies and knowledge of authoritative manpower systems), however, would likely need to be trained by the component.

We also find that personnel performing the policy development and oversight function must know both DOD and their own component policies, but they don't necessarily need strong technical skills. In other words, while those performing manpower policy and oversight functions need to have an understanding of the manpower analysis process, they do not

require the technical skills of those doing manpower analysis. Training could be differentiated for those doing manpower policy versus analysis. While thinking about what a DOD-wide training program might look like, a separate career track or certification program could be offered to those focused on manpower management and policy.

SME input

The majority of SMEs agreed that MM training could be standardized across DOD, noting that the basic functions and competencies required in manpower management are similar enough across DOD to allow for standardization. One Navy SME commented that an "Army manpower analyst should be able to come in off the street and perform Navy manpower work and vice versa."

This also was apparent when talking to SMEs about the backgrounds of personnel performing manpower management in their organizations. Several manpower SMEs noted that they had received manpower training while working for another service or had taken courses offered through another service. In addition, manpower personnel from various services already use the same training. For example, both Marine Corps Manpower Management Officers and Navy HROs attend the NPS for the MSA curriculum. This curriculum is open to officers throughout DOD and is used by other Services as well, although priority is given to Navy and Marine Corps officers.

Agencies outside DOD make use of DOD manpower training as well. We talked to US Coast Guard (USCG) manpower SMEs to get perspectives on MM outside of DOD. USCG SMEs indicated that they send their manpower analysts to the six-week USAF Manpower Apprentice/Manpower Officer Training (the Air Force training coursework in place prior to the METP-CP). The USCG analysts reported that about 61 percent of the performance objectives covered in the USAF training are represented in the USCG MRD job qualification requirement.

Should MM training be standardized?

Although we've shown that most aspects of MM training and education *can* be standardized, we must next ask if it *should* be standardized through a DOD-wide program. Several factors warrant consideration. While we have already established that there are gaps in manpower training across DOD that could be alleviated through a DOD-wide training and education program, that reason alone may not be sufficient to create a DOD-level program. We explore the following three issues to help understand if manpower training and education should be standardized:

- Evidence from previous assessments that the quality of the MM workforce is affecting MM processes and outcomes
- SME input on potential costs and benefits of DOD-wide program
- Lessons learned from the Defense Acquisition Workforce Improvement Act (DAWIA)

Specifically, we review past work for evidence that the outcomes or efficiency of manpower management processes are affected by manpower workforce quality, and we ask SMEs whether they think standardization would be beneficial. We also discuss lessons from implementing DAWIA and discuss what additional information DOD needs to collect.

Evidence from previous assessments

Previous assessments of MM in DOD reveal evidence of problems with MM processes in DOD. For example, a 2015 GAO report [33] points to issues with MM processes, noting that DOD needs to reassess requirements for the Office of the Secretary of Defense, Joint Staff, and Military Service Secretariats. In addition, multiple CNA studies point to issues with Navy Shore Manpower Requirements Determination (SMRD) processes, with one report noting that the process needs to be more fiscally informed [34].

Only a few assessments of MM focus on workforce quality issues, however. A 2010 CNA study [35] surveyed BSOs on SMRD and found that BSOs were all performing SMRD differently and that most lacked trained manpower analysts:

> There is a significant lack of trained manpower staff available to the BSOs. Most are recruiting trained staff from other BSOs or they are using a lengthy OJT process. A Navy-wide training and certification process would not only improve staff availability, it would also provide an opportunity to set more consistent expectations about what is needed for shore manpower assessment. [35]

In addition, the report previously referenced in our discussion of the composition of MM workforces [25] indicates that some members of the Air Force manpower engineering workforce lack the technical backgrounds that are typically required to conduct manpower analysis. As noted earlier, the Air Force manpower engineering workforce is composed of mostly civilian and enlisted personnel. The report notes that the AFMAA officer workforce consists of half operations analysts, indicating a dedication to technical expertise. It goes on to discuss, however, that the "AFMAA's civilian workforce brings little in technical modeling skills," with data on the AFMAA workforce showing no civilian operations research analysts (GS-1515) in AFMAA and only one industrial engineer (GS-0896) employed at an MRS [25].

The report notes further than combining the 11 operations research analyst officers with the single civilian industrial engineer yields a total of 12 technical analysts out of a workforce of

273 personnel, or roughly 4 percent. It goes on to discuss the background of the enlisted personnel working at AFMAA, noting that very few have bachelor's or master's degrees, and, of those who do, they are not in technical backgrounds. The report does point out, though, that the training provided to enlisted personnel in the manpower career field likely provides at least basic analytical skills, though not likely at the level provided by a degree in operations analysis or industrial engineering [25].

Our discussions with Air Force manpower SMEs support these findings, with SMEs noting that the manpower training courses provided before the new METP-CP was developed were considered suitable for entry-level or junior manpower analysts and did not provide the deep-dive training required for more technical manpower work. The creation of the METP-CP was likely, at least partially, a response to these criticisms, seeking to provide a more robust training program for the enlisted and civilian members of the Air Force manpower engineering workforce.

Overall, the literature does not provide significant evidence that a more highly trained or professionalized MM workforce is the solution to problems with MM processes. It is likely, however, that process issues can be partially attributed to the organization of MM, which allows nonprofessionals to perform MM functions. Therefore, while addressing issues with MM training and education is an important piece of the puzzle, it must be coupled with addressing process issues.

SME input on potential benefits

With the exception of SMEs in the Air Force who have a newly established training program, the majority of SMEs felt that a DOD MM training program would be beneficial and would be widely used. Many of the SMEs we spoke with expressed the opinion that MM is not prioritized as a community but that it should be, with common training and community of practice. SMEs noted several potential benefits of a standardized DOD-wide training program.

First, SMEs felt that a DOD-wide MM training program would lead to improved performance by establishing standards for manpower professionals. They believed it would ensure that MM analysts are being trained to perform in the most efficient and effective way. SMEs noted that a standardized training program would reduce ambiguity and establish an efficient and effective path for MM analysts to hone their skills through training, education, and targeted experience opportunities.

SMEs noted that a standardized training program can provide broader and deeper skills and increase the capabilities of analysts regardless of experience level. Some SMEs also expressed that the program could be designed to allow analysts to assess their current level of

professional development and identify the next steps of progression, with the ultimate goal of a DOD MM program to systematically develop manpower professionals.

SMEs also felt that a standardized continuum of learning would contribute to the professionalization of the manpower community, would encourage continuous professional development, and would make the career field more attractive and aid retention. They said this was especially true for civilians who currently work in MM but don't have an incentive to stay in the field because they feel there are few opportunities for growth.

In addition, one SME pointed out the "purplization" of MM as a potential benefit of standardizing training. All of the services have to provide some military manpower to the joint staff and several of the agencies and field activities, as well as to the combatant commands. This SME noted that if MM training and education were standardized, manpower professionals would be better able to work in a joint environment because they would all be trained consistently.

When asked if a training program should include a certification, some SMEs felt that a formal certification would be beneficial because it would allow individuals to be identified as certified manpower professionals. This would allow leadership to identify those who are certified and have met specific milestones. In addition, some SMEs noted that having a certification program would help to convey credibility and confidence to customers of manpower management. Several SMEs cautioned against a manpower certification program, however, expressing concerns that manpower positions would then require a certified manpower professional and that would make positions more difficult to fill.

Lessons from implementing DAWIA

Background

The DOD portion of the federal acquisition workforce (AW), as defined by the official DOD AW count, consists of over 130,000 military and civilian employees, as well as a large number of contractors. The defense AW includes people responsible for planning, design, development, testing, contracting, production, introduction, acquisition logistics support, and disposal of systems, equipment, facilities, supplies, or services that are intended for use in, or support of, military missions [36].

The policy environment for the management of the defense AW is dominated by the Defense Acquisition Workforce and Improvement Act of 1990. DAWIA had its roots in DOD acquisition scandals of the mid-1980s that led to internal and external pressures for reviews of defense acquisition processes. The consensus that emerged from these reviews was that the defense AW underperformed and was too large[37]. DAWIA attempted to address these size and

quality concerns by requiring that DOD count acquisition personnel work across a wide variety of functional areas and organizations within the military services and defense agencies to track the size of the AW, and by imposing requirements on the training of acquisition workers, both military and civilian [37].

Criticisms

Over the past four decades, the AW has been the subject of numerous investigations and specific policy guidance. Critics have targeted the size, quality, and effectiveness of the AW workforce as a key contributing factor to the observed problems with acquisition outcomes [37]. Numerous reviews conducted by GAO and DOD have concluded that more attention needs to be paid to acquisition workforce quantity and quality [38]. There have been pressures to increase and decrease the size of this workforce, to improve its quality (usually in terms of training and certification requirements), and to both outsource its workload and bring its workload in-house. Yet few would argue that defense acquisition outcomes have dramatically improved in response to these varied policy initiatives [37].

One workforce-related claim that is frequently noted in the AW debate and is pertinent to our assessment of the MM workforce is that that the AW lacks the skills necessary to perform acquisition work. Reference [37], however, found that evidence of such a lack of skills in the workforce is largely anecdotal. The author notes that a key barrier to assessing this perspective is a lack of systematic data on the skill level of the workforce, not to mention the skills that are required to perform the work.

This barrier to assessing the AW workforce mirrors the issues we are grappling with while trying to assess the quality of the MM workforce. Data on the skill levels of the MM workforce as well as on the skills required to perform MM work have not been collected. Further, because many of those performing MM are not trained manpower professionals and no certification program exists, we cannot assess education or training levels of the current MM workforce. A first step to addressing this issue is an MRD study to determine the true size and skill level of the MM workforce.

Recommendations for the AW that apply to the MM workforce

In the 2009 report, *Shining a Spotlight on the Defense Acquisition Workforce—Again* [37], the author notes efforts that should be directed toward assembling the information needed to track the effectiveness of workforce initiatives. We discuss the recommendations that apply to the MM workforce in turn.

Recommendation 1: Establish key process standards that are plausibly influenced by the workforce, and consistently monitor those processes. The author of the report makes the following statement:

> An infinitely large and supremely qualified AW will not generate on-time, on budget systems with no problems or appeals 100 percent of the time. The AW acts within the confines of a process, and if the process itself is not operating effectively, then improvements to the workforce can only do so much. Attention must be paid to the acquisition process itself, including the incentives for effective work embodied in that process. [37]

She continues, pointing out that the AW must be viewed as an input to a process and that thought should be given to concrete outcomes that the workforce could be expected to influence. This recommendation is particularly relevant to concerns about the MM workforce. As we've noted previously, simply providing better or more standardized training for the MM workforce likely will not fix all MM process issues. The quality of the MM workforce must be addressed in addition to MM process issues, and DOD must define what MM outcomes it expects the MM workforce will influence.

Recommendation 2: Map workforce characteristics to activities and outcomes. Next, the author of [37] notes that, to identify the impact of workforce size and quality on acquisition outcomes, one needs to assess acquisition outcomes and relate those outcomes back to the workforce. "An ability to map the AW to outcome data for the programs or organizations in which they work would support systematic analyses of the relationship between workforce attributes and outcomes" [37]. She goes on to note that, currently, such a mapping of the defense AW is not possible. To achieve this goal,

> managers need to develop metrics appropriate to the program, organization, or activity in question that plausibly inform the quality of the work being done; that is, they should develop metrics based on the things that the workforce could influence and that would ultimately be expected to affect outcomes. [37]

This is true of the MM workforce as well. At present, there is no definition of MM "outcomes" other than a general idea that the outcomes of MM processes are requirements or authorizations. DOD needs to define concrete outcomes that the MM workforce could be expected to influence and use these outcomes as metrics to measure the quality of the MM workforce.

Recommendation 3: Assess how staffing and resourcing decisions related to functions are made. As described in [37], policy-makers must keep in mind that specific characteristics of the workforce and its training and development are only partial contributors to outcomes. All policies are influenced by budget and management decisions that take place within the components. Attention also needs to be paid to what type of people are brought on board to do the work, how their workload is managed, and how they are mentored and trained. This information is necessary to understand the effect that specific policies are likely to have on any workforce and ultimately on outcomes.

Summary

Given present data constraints, we cannot answer the question of what impact a more highly trained manpower workforce would have on manpower process outcomes. Similar to the AW, the information that DOD would need to assess the success of MM workforce initiatives and their contribution to overall manpower outcomes is lacking. DOD needs a clear definition of MM outcomes, metrics for those outcomes, and the ability to tie the quality of the MM workforce to these outcomes before an assessment can be made.

Summary

We took an expansive view of MM to include programming and budgeting as well as authorization and allocation. We chose this expansive view as opposed to the more narrow view of MRD to lay out the different MM functions and how they fit together. This was useful not only to determine if MM functions are similar across the components, but also to create a roadmap for identifying potential problems with MM processes if DOD decides to explore these issues in the future. It will be up to DOD to determine which functions are included in any future training program, however.

Using the 2016–2021 Strategic Workforce Plan Report [19] and CP26 literature [20], we developed a list of necessary KSAs for each function. We organized these KSAs into generic, manpower-related, and component-specific groups. We determined that, while training could be standardized for the generic and MM-related KSAs, the component-specific KSAs (such as knowledge of component-specific policies and authoritative manpower systems) would need to be trained by the component. We also find that the KSAs required for MM policy and oversight are different from those required for manpower analysis/engineering.

We next identified the type of personnel performing MM throughout DOD. We find that there is no uniform way to identify civilians performing MM across the components and that, while enlisted personnel perform MM functions in some capacity in the Air Force, Marine Corps, and Navy, only the Air Force has a manpower-specific identifier for these personnel. In addition, we note that, according to function code data, many personnel performing MM functions in the Marine Corps and the Navy do not have manpower-specific designators and may be performing MM as a collateral duty. This could indicate a lack of trained manpower professionals to fill manpower positions, or perhaps it reflects an attitude that "anyone can do manpower"—a sentiment that SMEs indicated is prevalent outside of the organizations that do MM. This leads to personnel who have not been sufficiently trained performing MM functions.

We then moved on to discuss the MM training programs available throughout DOD, ranging from formal programs (e.g., the Air Force METP-CP, the Navy's HRCOE and NPS MSA, and the Army CP26 program) to training programs internal to organizations, such as NAVMAC. We find that, although training programs exist in each of the services, there are gaps and training inefficiencies throughout DOD, including much of the MM training being provided through lengthy OJT. At a minimum, a DOD-wide manpower training and education program would guarantee that the same level of training is available for those in the manpower community and would serve to close the training gaps that currently exist in DOD.

We also find significant SME appetite for such a training program. With the exception of SMEs in the Air Force who have a newly established training program, the majority of SMEs felt that a DOD MM training program would be beneficial and would be widely used. SMEs opined that a DOD-wide MM training program would systematically develop manpower professionals by establishing standards, providing broader and deeper instruction, and increasing the capabilities of analysts regardless of experience level. SMEs also believed that a standardized continuum of learning would contribute to the professionalization of the manpower community, would encourage continuous professional development, and would make the career field more attractive and aid retention. Finally, some SMEs thought that a manpower certification would be beneficial because it would allow leadership to identify those who have met specific milestones and would help to convey credibility and confidence to customers of manpower management. A standardized training program and certification program would also enable DOD to measure the skills and education level of the MM workforce, an important piece of data in evaluating the quality of any workforce.

Although we established that MM training can be standardized and that there are many potential benefits for the MM workforce, it is still unclear if DOD should standardize training. This question depends on the goal of such training. If the goal is to provide greater access to training and education for the MM workforce and to improve the gaps and inefficiencies in current training programs, a DOD-wide program would likely achieve these goals. Given present data constraints, however, we cannot say whether such a program would improve MM processes or outcomes. The information that DOD would need to assess the success of MM workforce initiatives and their contribution to overall manpower processes and outcomes is currently lacking. Without a definition of MM outcomes, metrics for these outcomes, and the ability to tie the MM workforce to these outcomes, the impact of any training initiatives on MM will remain unknown.

Conclusions and Recommendations

More data need to be collected to enable DOD to continue analysis on the benefits of a standardized MM training program. In addition, lessons can be learned from observing the Air Force METP over the next several years.

Main recommendations

An MRD study for the MM community

Somewhat ironically, DOD needs a better understanding of the manpower requirements for its MM workforce. A full MRD study of the DOD MM community would contribute to an understanding of the number and types of MM positions within the community. Collection of data on the skill levels of the workforce would also allow an understanding of how many people would need to be trained and a more accurate estimate of how much a program would cost.

A competency assessment

DOD also needs to understand the skills required to perform MM work. Although our research identified some KSAs that are common across MM functions in DOD, a DOD-wide MM competency assessment would provide more detailed information. Competency frameworks are typically organized into successive layers, each becoming more detailed about the specific KSAs needed in a specific occupation, sometimes categorized by career level (e.g., entry, intermediate, and senior).

The idea is to identify the competencies people need to perform a job well, construct a framework that captures those competencies, and use the framework as the foundation for recruiting, selecting, training, developing, and rewarding personnel. Competency frameworks are typically developed through a multiphase, iterative process that often includes the following:

- Review of literature and relevant documents (existing competency statements, job descriptions, etc.)
- Input from experts in the field
- Feedback from stakeholders at various levels of the organization, obtained through interviews, surveys, focus groups, or similar methods

Develop metrics for MM outcomes

DOD also needs to define MM outcomes and create standards for measuring these outcomes. Accomplishing this goal would require managers to develop metrics appropriate to the MM organization or activity in question that could inform the quality of the work being done. That is, they should develop metrics based on the things that the workforce could influence and that would ultimately be expected to affect outcomes. Without a definition of outcomes that the MM workforce could be expected to influence, DOD cannot use outcomes to measure the quality of the MM workforce.

Other recommendations

Observe the Air Force METP-CP for a time

DOD should also observe the Air Force METP-CP for a period of time to determine the potential impacts of this program on the manpower engineering workforce in the Air Force. If the Air Force can show that the new program has led to improved quality of the MM workforce and/or subsequently improved MM processes and outcomes, it could serve as a model for other services or for a DOD program.

The METP appears to be an attractive option to use as a model because it offers various levels of training, paths of specialization, and the potential for certification. A DOD program could be structured similarly and offer a menu of options that would enable organizations to determine how much training their personnel require for certain positions. Although the training program would be geared toward DOD civilians as the primary source of manpower personnel in DOD, it would be available to enlisted personnel and officers as well.

The program could be designed to allow MM personnel and their leadership to assess their current level of professional development and identify the next steps of progression that could enhance skills. Similar to the Air Force METP, the program could balance technical skills and leadership development. Recognizing that well-rounded analysts possess not only technical skills, but leadership skills and broader perspectives as well, the program could emphasize cultivation and development of those skills. Courses would be available to assist in developing technical experts, as well as leaders within the career field.

Determine who would manage the MM training program/community

If a DOD-wide manpower training and education program is developed, it must be managed. The government civilians and servicemembers who receive training must be managed in a way that allows them to fill positions requiring their skills and to have a career path within the manpower field. This will require an MM community with leadership oversight and the management of personnel and positions. Consideration should be given to which office would manage and oversee an MM training program and community.

Change civilian hiring practices

DOD could also consider how to move to a more highly trained MM workforce in the absence of a DOD-wide training program. First, as a predominantly civilian community, DOD organizations have flexibility in whom they hire for these positions. The components could draft project descriptions for MM professionals to require more technical skills, as opposed to more general management and program analysis skills. In other words, organizations could be more intentional about hiring— for example, by focusing on hiring civilians with backgrounds in operations research or industrial engineering. It may be more efficient to hire civilians who already have many of the KSAs for manpower analysis than to hire people who have more general management and program analysis skills and then train them in manpower after the fact.

Appendix A: The DOD Fourth Estate

Essentially, the Fourth Estate is any DOD organization other than the military services that has DOD manpower resources. This includes the OSD and the JCS and their staffs. And, within OSD, there are 20 defense agencies and 8 field activities that, along with the three military departments, are considered "supporters and suppliers" for the operational combatant commands and are also part of the Fourth Estate

The 20 defense agencies of the Fourth Estate follow: (1) Defense Security Cooperation Agency, (2) Defense Prisoner of War/Missing Accounting Agency, (3) Defense Contract Audit Agency, (4) Defense Finance and Accounting Service, (5) Defense Commissary Agency, (6) Defense Health Agency, (7) Defense Advanced Research Projects Agency, (8) Defense Logistics Agency, (9) Defense Contract Management Agency, (10) Defense Threat Reduction Agency, (11) Missile Defense Agency, (12) Joint Improvised Threat Defeat Agency, (13) Defense Information Systems Agency, (14) Defense Legal Services Agency, (15) Pentagon Force Protection Agency, (16) Defense Intelligence Agency, (17) Defense Security Service, (18) National Geospatial Intelligence Agency, (19) National Security Agency/Central Security Service, and (20) National Reconnaissance Office [2].

Next, we list the 8 field activities of the Fourth Estate: (1) Defense Technology Security, (2) Administration Defense Media Activity, (3) DOD Education Activity, (4) DOD Human Resources Activity, (5) Office of Economic Adjustment, (6) DOD Test Resources Management Center, (7) Defense Technical Information Center, and (8) Washington Headquarters Services [2].

The remaining Fourth Estate organizations are the three DOD universities—the Uniformed Services University of the Health Sciences, the Defense Acquisition University, and the National Defense University—and the Joint Task Force National Capital Region (NCR) Medical.

Table 10 shows the total number of manpower positions in most of the Fourth Estate organizations based on FY 2020 estimates from the April 2019 Defense Manpower Requirements Report [1], and the organizational structure is illustrated in Figure 8.

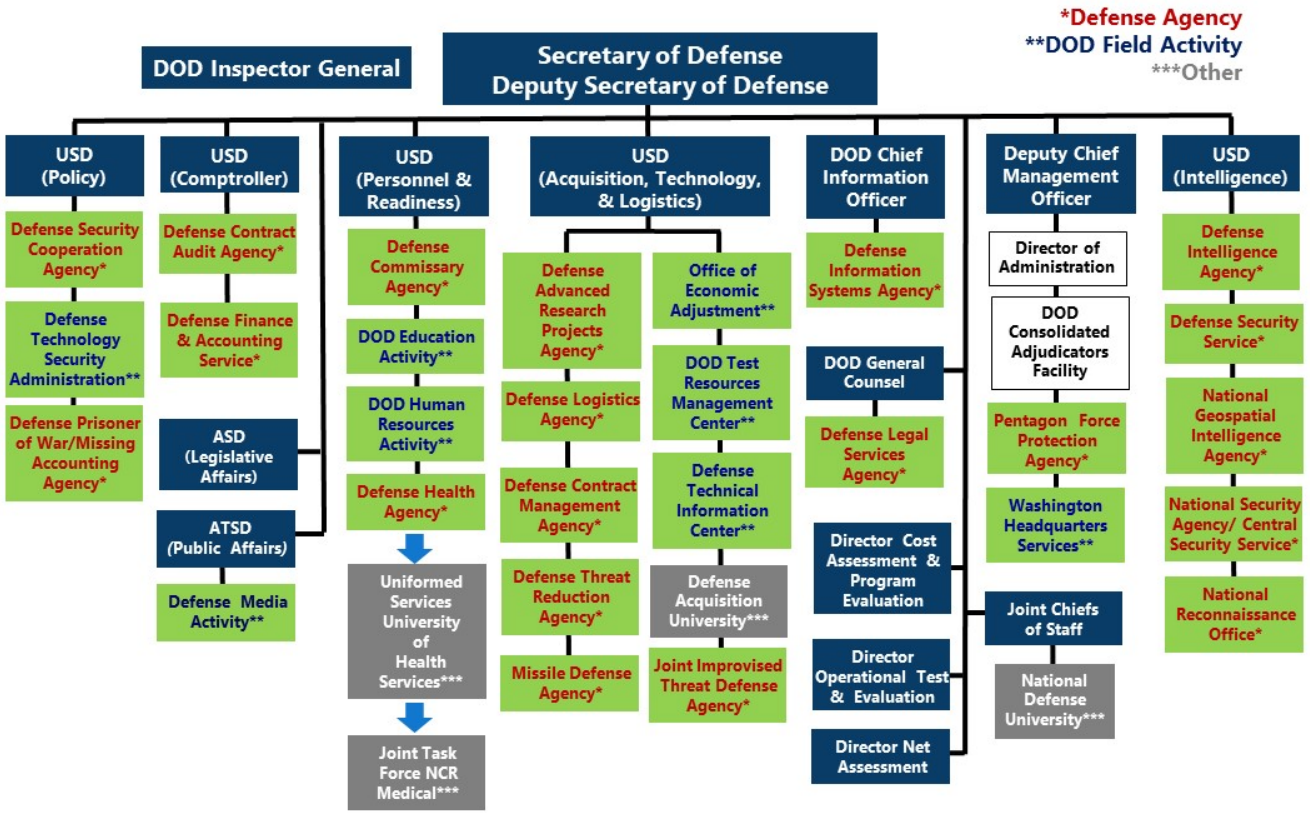
Table 10. Manpower by personnel type in Fourth Estate activities based on FY 2020 estimates

Activity	Active	SELRES	Civilian	Total
OSD-Level				
Office of the Inspector General	23	0	1,715	1,738
Office of the Secretary of Defense	361	197	1,893	2,451
Subtotal	384	197	3,608	4,189
Defense Agencies				

Activity	Active	SELRES	Civilian	Total
Defense Advanced Research Projects Agency	15	0	179	194
Defense Commissary Agency	4	0	12,575	12,579
Defense Contract Audit Agency	0	0	4,373	4,373
Defense Contract Management Agency	480	225	11,122	11,827
Defense Finance and Accounting Service	24	0	11,377	11,401
Defense Health Agency	717	0	9,190	9,907
Defense Legal Services Agency	206	0	459	665
Defense Logistics Agency	539	512	26,530	27,581
Defense POW/MIA Accounting Agency	274	0	332	606
Defense Security Cooperation Agency	106	0	392	498
Defense Security Service	0	0	1,727	1,727
Defense Threat Reduction Agency	792	97	1,354	2,243
Missile Defense Agency	120	0	2,183	2,303
Pentagon Force Protection Agency	14	0	1,272	1,286
Subtotal	3,291	834	83,065	87,190
DOD Field Activities				
Defense Human Resources Activity	71	24	1,268	1,363
Defense Media Activity	846	34	580	1,460
Defense Technical Information Center	0	0	212	212
Defense Technology Security Administration	8	21	127	156
Defense Test Resource Management Center	3	0	28	31
DOD Education & MC&FP Managed Programs	0	0	11,974	11,974
Office of Economic Adjustment	3	0	37	40
Washington Headquarters Services	152	1	1,336	1,489
Sub total	1,083	80	15,562	16,725
Other Defense-Wide Organizations				
Defense Acquisition University	43	0	640	683
Uniformed Services University of the Health Sciences	982	0	659	1,641
United States Court of Appeals for the Armed Services	0	0	59	59
Communications and Classified Programs	14,810	1,102	50,816	66,728
Subtotal	15,835	1,102	52,174	69,111
Fourth Estate Total	**20,593**	**2,213**	**154,409**	**177,215**

Source: Table 2-4 in reference [1].
Notes: Military positions are shown for information only; they are double-counted, appearing in both the service and Fourth Estate manpower totals. Numbers may not add due to rounding errors.

Figure 8. The DOD Fourth Estate



Source: Adapted from reference [2].

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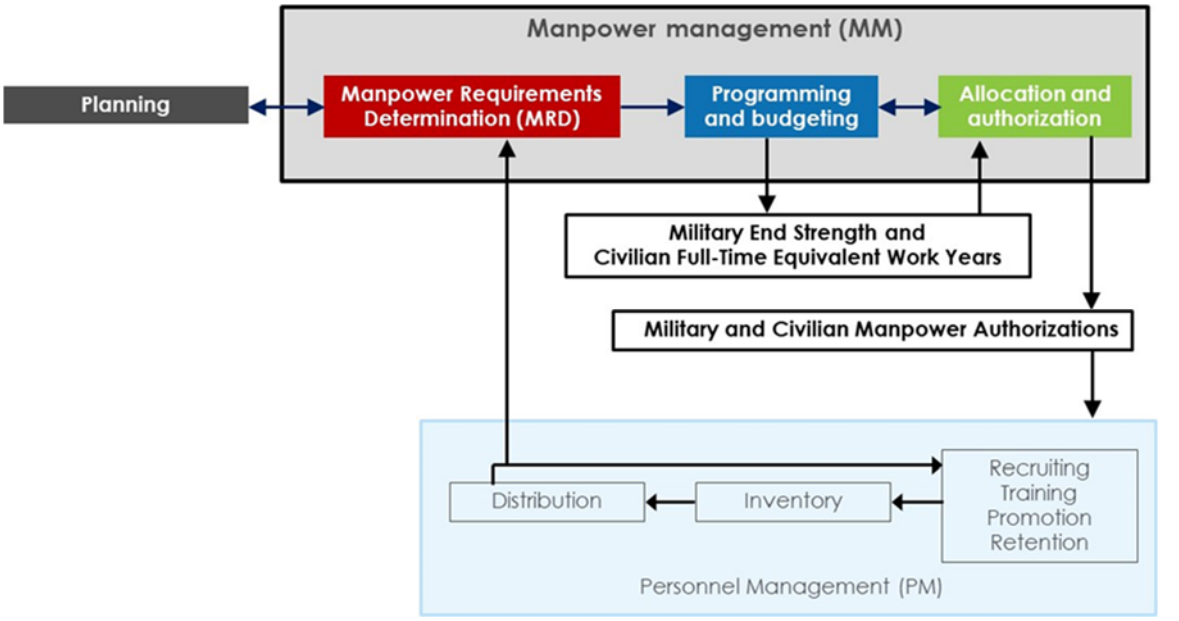
Appendix B: Manpower vs. Personnel Management

Personnel management (PM) is the process by which the DOD and the services recruit, train, develop, and, ultimately, assign personnel with the right skills and experiences to the positions and billets that need them. In economics terms, MM generates the signal of labor demand to which PM responds by generating the appropriate labor supply. The services use more colloquial shorthand language to distinguish between MM and PM, saying that MM is about spaces and PM is about faces.

Based on this characterization, the primary relationship between MM and PM dictates that PM responds to MM. There is, however, a feedback loop through which PM processes and outcomes affect MM process and outcomes. For example, PM considerations—specifically PM executability—should be incorporated into MRD for new weapon systems, and PM outcomes are included in the execution review that occurs during PPBE.

Figure 9 summarizes the relationship between MM and PM, highlighting the interaction and the boundaries between them.

Figure 9. MM: Functions, outputs, and boundaries



Source: Authors' summary of manpower and personnel management across DOD. Adapted from [39]

Appendix C: PPBE

PPBE is the process used to create the DOD's portion of the President's annual budget request to Congress. The Congressional Research Service (CRS) describes it as follows:

> Planning, Programming, Budgeting, and Execution (PPBE) is an annual Department of Defense (DOD) process for allocating resources. It serves as the framework for DOD civilian and military leaders to decide which programs and force structure requirements to fund based on strategic objectives. [17], p. 1]

DOD Directive 7045.14 [40] states that the objective of PPBE "is to provide the DOD with the most effective mix of forces, equipment, manpower, and support attainable within fiscal constraints."

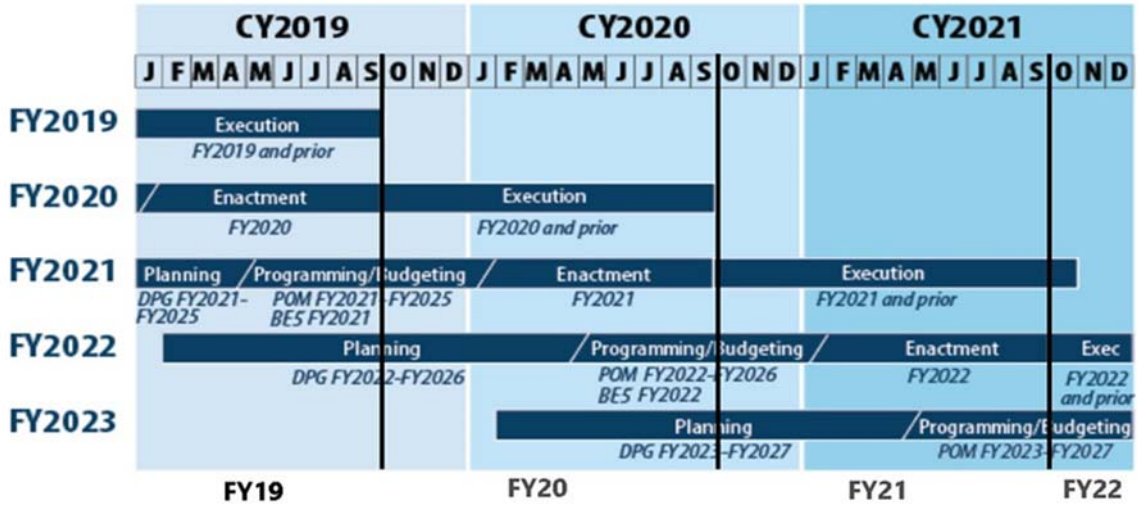
Thus, manpower programming and budgeting are the processes that inform the manpower portion of each DOD component's budget and, in aggregate, of the overall DOD budget. These MM processes are analogous to the processes for procuring the weapon systems used by combat units and the office and other equipment used by DOD agencies and field activities.

Timing and frequency

PPBE (and, therefore, manpower programming and budgeting) occurs on a set schedule that is tied to the Future Years Defense Program (FYDP). Although each step in the PPBE process for any FY occurs annually, the different steps don't all occur in the same FY. This multiyear aspect of the PPBE schedule is illustrated in Figure 10. For example, consider the PPBE schedule for FYDP21–25:

- Planning: First through third quarters of FY 2019
- Programming and Budgeting: the third and fourth quarters of FY 2019 and the first quarter of FY 2020
- Enactment (congressional translation of budget inputs into law): second through fourth quarters of FY 2020
- Execution: FY 2021

Figure 10. PPBE process by month, calendar year, and fiscal year



Source: Adapted from reference [17].

The FYDP[20]

The FYDP is a financial plan that projects DOD's needs for and the costs of forces, manpower, and equipment multiple years into the future. It captures resource management decisions made by all DOD components at each stage in the PPBE process and is updated twice during the cycle—once to reflect the services' programming and budgeting submissions and once to reflect the President's budget submission.

More specifically, the FYDP is a database that summarizes cost and quantity information about the manpower, forces, and equipment associated with DOD programs. It has a three-dimensional structure so that data can be sorted by the following variables: resources, major force programs (MFPs), and components.

Resources are considered inputs to the system because they support the congressional review structure, which specifies inputs to DOD. There are three broad resource types, each of which includes specific resource categories that are identified with a unique set of resource identification codes (RICs):

[20] This subsection summarizes information from references [18] [41].

- *Total Obligation Authority (TOA).* TOA enumerates dollars and its RICs identify the appropriation accounts contained in the President's Budget.
- *Manpower.* Manpower enumerates military endstrength and civilian full-time-equivalent work years. Its RICs identify officer, enlisted, and civilian manpower in all the components of the military services, as well as three manpower types for the Fourth Estate—US direct hire, foreign direct hire, or foreign indirect hire.
- *Forces.* This resource type enumerates either items of equipment or combat units. Its RICs identify specific hardware items or weapon systems by type and model (e.g., aircraft, missiles, and ships) and describe specific force organizations (e.g., divisions, brigades, battalions, and wings).

MFPs are considered outputs of the system because they support the department's internal review structure, which is primarily output oriented. There are 11 MFPs—6 combat force-oriented programs and 5 support programs—which are, in turn, divided into thousands of individual program elements (PEs).

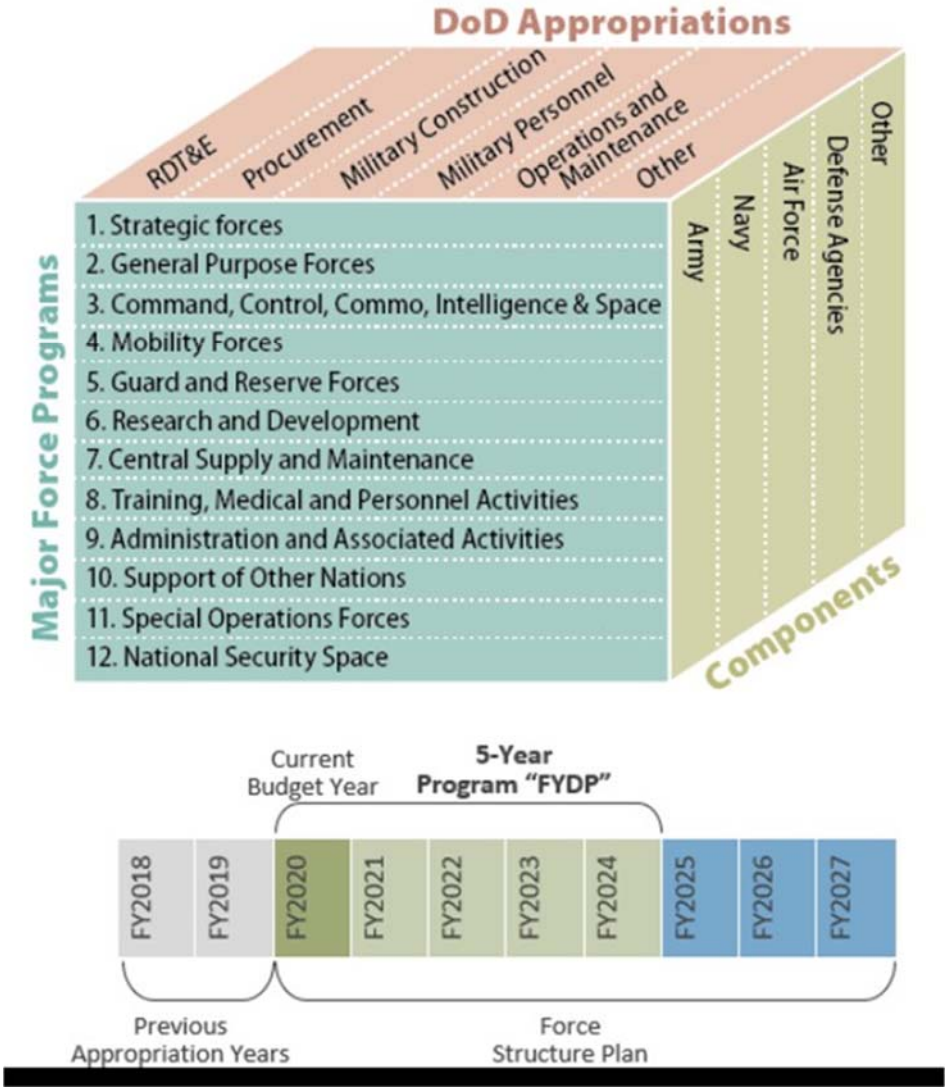
A key benefit of the FYDP structure is that grouping funding by program, rather than activity, reflects the planned allocation of DOD resources to major strategic efforts over a multiyear period. Specifically, the FYDP arrays its data over a 10-year period. For all three resource types, it contains estimates for the current budget year plus four years into the future, and for forces, it contains estimates for an additional 3 years. The FYPD also typically contains actual data for the previous two budget years.

Finally, all DOD components submit data to the FYDP. Each is assigned its own set of RICs for each resource type, but all use the same PEs for their MFPs.

All of these features are summarized in Figure 11, which shows FYDP data structure by MFP, component, and five of the major appropriation categories associated with the TOA,[21] as well as the time horizon covered by each FYPD.

[21] The major appropriations categories captured in "other" in Figure 11 are Base Realignment and Closure (BRAC), Family Housing, and Revolving and Management Funds,

Figure 11. FYDP structure (by TOA, MFP, and component) and time horizon



Source: Reference [40].

Planning

The planning phase of PPBE is about establishing the "the military role and defense posture of the United States and the DoD in the world environment" [40]. This phase focuses on planning the integrated and balanced military forces necessary to accomplish a national defense strategy designed to maintain national security and to support U.S. foreign policy. In particular,

it defines the policy framework needed to manage DOD resources while taking into account priorities, affordability, risk, suitability, feasibility, and effectiveness [40].

The primary output of the planning phase is the Defense Planning Guidance (DPG), which provides all the DOD components with basic guidance for program development, including the criteria and assumptions for structuring forces and the priorities for committing resources for modernization, readiness, and sustainability initiatives [42].[22]

Because it happens at the very high strategic level, we don't call out an explicit MM role in the planning phase of PPBE. We include it in this discussion, however, because people doing other MM functions must understand the planning guidance and how to incorporate it into their efforts. In particular, they must know whether it implies changes to overall force structures or to the unit-specific missions or functions and tasks that inform the MRD process.

Programming and budgeting[23]

Manpower programming and budgeting happen concurrently during the PPBE timeline illustrated in Figure 12. They are separate, but related, bottom-up processes that entail subcomponent-level products being aggregated to the component level for external review and approval, and subsequent further aggregation to the DOD level. From the MM perspective, the main outcomes of the combined programming and budgeting processes are the congressionally funded total civilian one-year equivalents for each DOD component and military endstrength for each service.

As a distinct process, the purpose of programming is to turn planning guidance into achievable, affordable packages for every program. Specifically, reference [40] provides the following direction:

> The DOD Components shall develop proposed programs consistent with the planning guidance, programming guidance, and fiscal guidance. These programs shall reflect systematic analysis of missions and objectives to be achieved, alternative methods of accomplishing them, and the effective allocation of the resources. [15]

At the component level, the primary output of the programming process is a Program Objective Memorandum (POM). A POM is a component-specific funding plan that describes, prioritizes, and adjusts proposed resource requirements (i.e., forces, manpower, and funding) for all relevant programs across the five years of the FYDP. In particular, each component's POM

[22] Effective April 2010, the DPG replaced the Guidance for the Development of the Force (GDF) and the Joint Programming Guidance (JPG).

[23] This subsection summarizes information from references [17-18, 42]

identifies “significant” force structure and endstrength changes, as well as “major” system new starts [43].

Each component’s POM is reviewed by both the Joint Staff and the DOD Office of Cost Assessment and Program Evaluation (CAPE). The Joint Staff review ensures that each POM complies with the DPG and the National Military Strategy (NMS). It includes an assessment of any potential risks to the Armed Forces’ ability to execute the defense strategies approved during the planning phase. The result of this review is documented in the Chairman's Program Assessment (CPA). The CAPE review ensures that each POM complies with DOD programming guidance and assesses the overall balance of the components’ programs.

At the DOD level, the primary output of the programming process is Program Decision Memoranda (PDMs) that summarize the program decisions for every component and reflect changes made during the review and approval process. The PDMs are issued by the Secretary of Defense (SECDEF).

The purpose of the budgeting process is to convert the programs described in the POMs into budget terms and to create defensible budget requests that can be submitted Congress.

At the component level, the primary output of the budgeting process is a component-specific Budget Estimate Submission (BES) for the first year of the POM based on pay and pricing policies developed by the Office of the Secretary of Defense (OSD) and the Office of Management and Budget (OMB).

Each component’s BES is reviewed by the Office of the Under Secretary of Defense (Comptroller) under the guidance of OMB. Specifically, Comptroller analysts ensure that the BESs are defensible, properly phased, priced, and formatted, and consistent with DOD funding policies. The budget review also includes an execution review, which evaluates how each organization has executed (i.e., obligated and expended) currently available funds. The point of the execution review is to determine the impact of current-year execution on budget-year submissions, looking, in particular for “excess” funds from the current year that can be shifted to a future year and, thus, allow a decrease in future funding requirements.

At the DOD level, the budget review process generates Program Budget Decisions (PBDs) that capture the budget decisions for every component and represent DOD’s budget submission to OMB for inclusion in the President’s annual budget request to Congress.

Appendix D: KSA Descriptions

This appendix provides descriptions of the knowledge, skills, and abilities (KSAs) identified in the main text. The descriptions are copied directly from the source documents (references [19-20] though they are reorganized based on the three KSA categories used for analysis. They are provided for the convenience of the reader.

The source documents introduce their respective KSA lists as follows.

Reference [19]:

> Definitions of competencies for employees in manpower management positions are presented below. These competencies are functionally based technical competencies and are not specific to any individual series. These competencies may apply to multiple occupational series accomplishing Manpower activities. This functional-based approach differs from DOD's Competency Management Framework which is a series-based competency approach. [[19], Appendix 11, p. 12]

Reference [20]:

> For CP26, there are the technical competencies which support our work. These competencies cover the areas of knowledge, skills, and abilities that are necessary to understanding, meeting and performing the responsibilities and tasks associated with our discipline. [[20], p. 9]

Generic KSAs

Statistical and quantitative analysis

Knowledge of statistical and quantitative analyses, operations research, and management and industrial engineering techniques for developing and adapting methodologies and mathematical models in order to conduct studies and identify and resolve organizational issues and force management problems.

Efficiency review and productivity programs

Knowledge of organizational operational improvement and productivity techniques and procedures for conducting special studies necessary for assessing the productivity, effectiveness, and efficiency of program operations, work processes, and work methods and for determining if program objectives are attained.

Automated information management systems

Skills in operating a PC for accessing databases, etc.; knowledge of a variety of automated information management software packages and automated system capabilities for gathering and analyzing data, creating programs to manipulate and track data and files, and for developing documentation for manpower and other management decisions.

Work measurement[24]

Knowledge of work measurement techniques, such as engineered time studies and work sampling for evaluating workload and output, forecasting, and conducting analyses. Ability to conduct a manpower study or equipment survey from inception to recommended solutions and follow-up.

Cost-benefit analysis

Knowledge of the principles and methods of cost-benefit analysis, including the time value of money, present value concepts, and quantifying tangible and intangible benefits.

MM-related KSAs

Manpower policy and guidance (executive/DOD)

Knowledge of laws; executive orders; and DOD directives, instructions and manuals, policies, and guidelines governing the manpower program which are necessary to plan, analyze, interpret, advise on, and implement the manpower management program.

Manpower allocation and utilization control guidelines

Knowledge of manpower allocation and utilization control guidelines and constraints necessary to provide technical advice and assistance on manpower allocation/distribution to subordinate commands, formulate and recommend force structure constraints, design parameters and standardization rules, and implement approved force design and force structure standards.

Planning, programming, budgeting, and execution

Knowledge of PPBE regulations, policies, processes, and procedures necessary to ensure effective use of resources and to establish and maintain the department's capability to accomplish roles and missions. Knowledge of the interrelationship of PPBE with manpower management and the force development and force integration processes.

[24] This was included as a subset of the Requirements Determination KSA.

DOD program budget guidance development

Knowledge of procedures for coordinating and developing formal resource information and guidance, such as the number of civilian/military manpower floor and ceilings, average salary data, total manpower, and strengths by quarter necessary for budget development and submission.

Commercial Activities (CA) Program and other contracting-out programs

Knowledge of CA, competitive sourcing and privatization, and Inter-service Support Agreement processes required to perform economic analyses and cost evaluations of alternatives, to performing required work in-house that includes the preparation and interpretation of statements of work. Knowledge of the application of manpower mix criteria.

Development of manpower allocation principles, policies, processes, and procedures

Knowledge of manpower allocation principles, policies, processes, and procedures necessary to review, analyze, interpret, and develop guidance for allocating, distributing, and documenting manpower within immediate and/or subordinate organizations.

Component-specific KSAs

Mission/functions and organizational structures

Knowledge of peacetime, contingency, mobilization, and wartime missions and functions and knowledge of the organizational structure of the Joint Tables of Distribution and Allowances, Tables of Organization and Equipment (TOE), and Modification TOEs.

Policy and programs to establish change and formalize missions, functions, and organizational structure

Knowledge of policies and programs to establish, revise, and make formal changes to organizational missions, functions, and structures due to major reorganizations, consolidations, establishment of new installation missions or functions, or other workload or mission changes.

Management information and workload reporting systems

Knowledge of management information and workload reporting systems used to make various manpower decisions, such as determining manpower requirements and authorizations, developing performance work statements reflecting the mission and output of organizations, and identifying operational requirements suitable for automation.

Manpower allocation rules and workload factor utilization

Knowledge of factors used in manpower allocation such as validated manpower requirements, mission requirements, mission priorities, downsizing, and reshaping of command position structure and mission and manpower controls associated with the allocation of manpower spaces.

Budget preparation and submission procedures and processes

Knowledge of the DOD budget preparation and submission processes necessary to review and analyze budget preparation and submission instructions, directives, and documents; coordinate budget activities with others; and develop, justify, and defend budget estimates to support operational costs.

Interrelationships of force structure, manpower, equipment, budget, and authorizations

Knowledge of the interrelationship of force structure, manpower, equipment, and budget authorizations for making analyses, conducting studies, implementing program changes, establishing policy and guidance, and ensuring compliance with governing regulations and procedures.

Manpower requirements determination programs

Knowledge of techniques and procedures, such as manpower staffing standards, surveys, staffing guides, Five-Phased Approach, manpower requirements criteria, etc., for evaluating work and determining manpower requirements necessary for mission accomplishment in organizations.

Manpower survey program

Knowledge of manpower survey program, including policies, procedures, and forms necessary for planning and conducting manpower surveys and studies; using acceptable/approved survey techniques, such as the Five-Phased Approach;[25] validating mission and function tasks, workload, and staffing needs; identifying manpower and organizational problems; recommending solutions; and providing technical assistance and follow-up.

Staffing guide maintenance and application

Knowledge of staffing guides and procedures for maintaining and applying them in order to determine military and civilian staffing patterns, requirements, and authorizations of number and types of personnel and equipment.

[25] The Five-Phased Approach is specific to the Army. The other services have different systems for doing the same types of analysis.

Authoritative manpower systems

Knowledge of automated manpower management systems for documenting organizational structure, personnel, requirements, and authorizations.

Organizational program budget document development and processing

Knowledge of procedures for developing, presenting, and defending the command budget program; developing and processing detailed budget data reflecting the years' operating budget plan; submitting POM requirements; processing budget authorizations; and ensuring approved budget programs are properly executed.

Force structure analysis and approval process

Knowledge of force structure management theories, principles, laws, rules, regulations and procedures for studying and analyzing force structure and force structure designs, identifying problems, and developing conclusions and solutions for a more effective force structure.

Requirements determination process

Knowledge of the system by which concepts (requirements for new materiel or organizations) are developed and analyzed and from which doctrinal, training, organizational, and materiel needs evolve in order to review and analyze concept plans, materiel requirement documents, and organizational design.

Policies and procedures for position conversions, grade and specialty code changes, and special skill requirements

Knowledge of policies and procedures necessary to interpret, analyze, modify, and effect change in Military Occupational Specialty Codes and Specialty Skill Identifiers and make revisions to enclosed documents.

Force development interrelationships among organization, force, systems, and documentation

Knowledge of the interrelated processes linking the organization, force, systems, and supporting documentation in order to analyze systems and processes, assess effectiveness, and recommend solutions.

Manpower requirements determination for TOEs

Knowledge of pertinent doctrine and regulations, policies and precedents, and related support resources affecting the combat development process in order to analyze, evaluate, and advise on requirements necessary to perform a stated mission.

Development policy, programs, and processes, including analytical procedures

Knowledge of policies, programs, processes, and analytical procedures for development of structure, manpower, equipment, and organizational options for a specific type of unit.

Force Design Update (FDU)

Knowledge of the assessment process for examining the current and future force, determining deficiencies in present capabilities, identifying the need for corrective actions, and developing corrective actions in light of current technological opportunities. Knowledge of criteria and process for obtaining approval of force design changes through the FDU process.

Figures

Tables

Abbreviations

AFI	Air Force Instruction
AFMAA	Air Force Manpower Analysis Agency
AFSC	Air Force Specialty Code
AR	Army Regulation
ASCC	Army Service Component Command
AW	acquisition workforce
BCT	Brigade Combat Team
BES	Budget Estimate Submission
BRAC	Base Realignment and Closure
BSO	Budget Submitting Office
BUMED	Bureau of Medicine and Surgery
BUPERS	Bureau of Naval Personnel
CAPE	Cost Assessment and Program Evaluation
CD&I	Combat Development & Integration
CJCS	Chairman of the Joint Chiefs of Staff
CoL	Continuum of Learning
CP26	career program 26
CPA	Chairman's Program Assessment
CPEP	Certification Preparation and Examination Program
CRS	Congressional Research Service
DAWIA	Defense Acquisition Workforce Improvement Act
DC	Deputy Commandant
DCMA	Defense Contract Management Agency
DCSs	Deputy Chiefs of Staff
DISA	Defense Information Systems Agency
DOD	Department of Defense
DODD	DOD Directive
DON	Department of the Navy
FYDP	Future Years Defense Program
HRAC	Human Resources Advanced Course
HRCOE	Human Resources Center of Excellence
HRIC	Human Resources Introductory Course
HRO	Human Resources Officer
IA	individuals account
IG/CA	Inherently Governmental and Commercial Activities

JCS	Joint Chiefs of Staff
KSAs	knowledge, skills, abilities
M&RA	Manpower & Reserve Affairs
MCO	Marine Corps Order
METP	Manpower Enterprise Training Program
METP-CP	METP Certification Program
MFP	major force program
MM	manpower management
MOC	Manpower Officer Course
MOS	Military Occupational Specialty
MPT&E	Manpower, Personnel, Training, and Education
MRD	manpower requirements determination
MRS	Manpower Requirements Squadron
MSA	Manpower Systems Analysis
MSC	major subordinate command
NAVMAC	Navy Manpower Analysis Center
NAVSEA	Naval Sea Systems Command
NAVSUP	Naval Sea Supply Command
NCR	National Capital Region
NMS	National Military Strategy
NPS	Naval Postgraduate School
OJT	on-the-job training
OMB	Office of Management and Budget
OPM	Office of Personnel Management
OPNAVINST	OPNAV Instruction
OSD	Office of the Secretary of Defense
PAC	personnel administration center
PBD	Program Budget Decision
PDM	Program Decision Memorandum
PE	program element
PM	personnel management
POM	Program Objective Memorandum
PPBE	Planning, Programming, Budgeting, and Execution
RIC	resource identification code
RS	Resource Sponsor
SECDEF	Secretary of Defense
SME	subject matter expert
SMRD	Shore Manpower Requirements Determination
TFMMS	Total Force Manpower Management System

TFSMS	Total Force Structure Management System
TOA	Total Obligation Authority
TPPH	Transient, patient, prisoner, holdee
TYCOM	Type Command
USAMAA	USA Manpower Analysis Agency
USFF	Fleet Forces Command
USFFC	Commander, Fleet Forces Command

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