



INSTITUTE FOR DEFENSE ANALYSES

**Managing the Total Force:
Using Civilianization to Militarize
the Military**

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Executive Summary

The Committee wants and expects to see military personnel out from behind desks and back in aircraft, ships and troop units. – *House Appropriations Committee comment on the 1973 Defense Appropriations Bill*

The Department [of Defense] must undertake a sustained effort to build an appropriate, cost-informed civilian workforce that best serves mission requirements, while freeing up uniformed personnel for military essential needs and scarce resources for recapitalization, modernization, and readiness. – *2018 National Defense Strategy*

The Department of Defense (DoD)’s relationship with civilianization is a story of two opposing forces in an unstable equilibrium—internal pressure to replace military personnel with government civilians (hereafter referred to more simply as “civilians”) to save money, and external pressure to reduce civilian staff across the defense establishment, particularly in times of declining budgets and personnel downsizing. The debate about how to generate the most efficient and proper mix between military and civilian manpower goes back at least 50 years, yet there is remarkably little research and analysis of the subject.

DoD Instruction (DoDI) 1100.22 *Policies and Procedures for Determining Workforce Mix*, published in April 2010, lays out good guidance for determining when to use military or civilian performers.¹ Some positions are “military essential” because their operational contexts require it. Characteristics of these military essential positions defined in DoDI 1100.22 include:

- Military-unique knowledge and skills are required for performance of the duties;
- Military incumbency is required by law, executive order, treaty, or international agreement;
- Military performance is required for command and control, risk mitigation, or esprit de corps;
- Military manpower is needed to provide for overseas and sea-to-shore rotation, career development, or wartime assignments; or

¹ Department of Defense Instruction (DoDI) 1100.22, *Policies and Procedures for Determining Workforce Mix*, April 12, 2010.

- Unusual working conditions or costs are not conducive to civilian employment.

Positions with these characteristics may only be staffed by military personnel. For all other positions in which either military or civilian performance is appropriate, DoDI 1100.22 directs workforce managers to employ the less expensive option between the two. In most cases, civilians are the less expensive option.

Despite this guidance, efficient management of the DoD workforce remains a challenge, and there remain significant opportunities to improving the efficiency of the workforce mix. Historical and current practices tend to encourage overuse of military in positions that could be more efficiently staffed by civilians, resulting in higher personnel costs and fewer uniformed personnel available for positions that require military performance.

In the first part of this paper, we discuss the impediments to civilianization identified from a historical review of DoD civilianization efforts since 1965 and interviews with Service manpower analysts. We identified six recurring issues that have consistently undermined civilianization efforts in the past 50 years:

- The lack of a consistent methodology to determine military essentiality for specific positions and functions across the Services;
- The lack of a unified, holistic approach to determine DoD military and civilian personnel requirements and, importantly, budget allocations;
- The critical role of congressional legislation, from capping civilian authorizations to prohibiting conversions in certain career fields, in the outcomes of conversion efforts;
- Military Service concerns, rooted in historical precedent, about losing converted positions due to decreased civilian personnel ceilings caused by pressure to reduce overhead and Pentagon civilian staff;
- Manpower gaps that emerge while executing conversions, where military billets have been civilianized but civilian replacements have not yet filled the converted positions; and
- Other human resource and management factors beyond cost—including mobilization potential, unit morale, and career progression—that affect the decision to employ military versus civilian manpower to perform a specific function.

Overcoming 50 years of persistent challenges will not be easy, nor will it occur overnight. Future attempts to find potential savings from civilianization should be mindful of these challenges and address the factors that have stifled such programs in the past.

Workforce mix continues to be managed from the top down; the Congress and Department senior leaders attempt to address real or perceived inefficiencies by adjusting or constraining military and civilian personnel counts in the aggregate—putting caps on end strength, freezing hiring, etc. Because these top-down approaches do not address the underlying incentive problems that lead to the overuse of military personnel, we have found that they often have the opposite of the intended effect—by increasing the vulnerability of the civilian workforce to cuts without regard to actual requirements, the Services are incentivized to protect their workforce by putting it in uniform, compromising the actual “lethality” as well as the readiness of the military.

A better approach for efficient workforce management recognizes that “bottom-up” solutions are required that identify the missions, tasks, functions, and resulting workload requirements first, without regard to the eventual labor source. These personnel requirements can then be compared against accepted standards for military essentiality, inherently governmental activity, and closely associated with inherently governmental and critical activities to identify where positions should be filled by military personnel or civilian personnel, or where work can be augmented with contracted support.

Such a bottom-up approach is unlikely to be effective unless the environment in which people make workforce mix decisions changes. Ambiguity in the criteria for determining military essentiality plays a role in facilitating the overuse of military personnel in positions that do not require them. However, we believe that the major reasons for such overuse are the incentives facing the people who make workforce mix decisions, including bad price signals and impediments to actually implementing decisions to civilianize, as described above.

Our first seven recommendations address removing or reducing these perverse incentives:

- **Recommendation 1:** Avoid implementing arbitrary cuts in the civilian workforce. DoD cannot prevent the Congress from imposing personnel caps and conversion bans, but it can make clear that such actions are serious impediments to rational workforce management.
- **Recommendation 2:** Tie end-strength increases to operational force structure requirements and accepted military essentiality arguments, while recognizing the intrinsic role of civilians as a part of operation capabilities.
- **Recommendation 3:** Develop a more aligned and enterprise-wide taxonomy for documenting mission, task, functions, and workload requirements without regard to the eventual labor source.
- **Recommendation 4:** Establish a governance process within the construct of DoD’s Planning, Programming, and Budgeting Execution (PPBE) process and

readiness reporting that facilitates a more consistent application of military essentiality, ensuring that demands for military manpower are coordinated and the military incumbency is warranted, informed by mission, task, function analysis, and/or a business case.

- **Recommendation 5:** Ensure funding for civilian positions resulting from military-to-civilian conversions for a determined period of time.
- **Recommendation 6:** Ensure there are no gaps in funding during military-to-civilian conversions.
- **Recommendation 7:** Consider integrating the funding of military and civilian personnel to improve visibility into the costs of alternative personnel types. Pilot programs could test ways of implementing decentralized military manpower budgeting.

In the second part of this paper, we document the current workforce mix across the three military departments and identify two main functional areas—Education and Training (E&T) and Personnel and Social Services (P&SS)—where significant potential savings can be generated through civilianization. We focus on these two functional areas for two main reasons. First, these functional areas are generally not related to combat or likely to require significant deployments. Second, a reasonable amount of variation in workforce mixes exists across the military departments, suggesting opportunities to increase the role of civilians in departments with more military-intensive mixes. The variation in workforce mix is a less dramatic number in E&T compared to P&SS, but with nearly 70,000 military authorizations, even relatively small changes in the E&T workforce mix could generate significant savings.

This paper makes two significant contributions to past workforce mix analyses. First, using data from the Inventory of Contracts for Services to estimate the contribution that contractors make to each department’s workforce allows us to better represent the true workforce mix and the relative size of the military workforce across functional areas. Second, the use of the criteria codes in the Inherently Governmental and Commercial Activities (IG/CA) dataset allows us to attempt—albeit imperfectly—to account for military essentiality; in documenting the current manpower mix across the criteria codes, we found civilian authorizations categorized with criteria codes originally thought to be military only. Consequently, there is no way to use the IG/CA dataset to separate military essential authorizations from non-military essential authorizations without looking on a case-by-case basis.

We also found that similar functions are coded differently across the Services. In some ways, this is not surprising—decentralized execution of the data call, combined with the volume of data collected, means that individual manpower analysts may interpret the workforce mix guidance differently and interpret code authorizations in a manner that,

while consistent with the policy, ends up inconsistent across the entire dataset. In light of these data challenges, we make the following recommendations to improve the tools available to manpower analysts for managing the DoD workforce:

- **Recommendation 8:** Standardize the reporting and coding criteria in future revisions of DoDI 1100.22 for manpower analysts across the Services and at the lowest organizational level possible.
- **Recommendation 9:** Adapt manpower systems to ensure the IG/CA report includes the criteria for military essentiality as identified in DoDI 1100.22.

In total, we estimate about 14,200 military authorizations could be converted to about 11,300 civilian authorizations across E&T and P&SS functions. The 14,200 military billets that are freed up could be realigned to more critical military essential functions, improving the overall readiness and lethality of the force, or this end strength could be reduced, yielding about \$530 million in long-run savings to DoD each year that could likewise be realigned to improving the readiness of the force. When additional cost differences (e.g., in veterans' benefits) are included, we estimate total annual savings to be about \$1.1 billion government-wide.

There are two primary sources of savings from converting military billets to civilian. The first is the tendency for civilian personnel to cost less than military personnel, all else being equal. This difference alone accounts for \$245 million in savings to DoD each year and \$775 million in savings each year government-wide. The second source of savings is our assumption that fewer civilians are required to replace a given number of military billets. Previous research² has identified numerous reasons why fewer civilians may be required to fill a given number of military authorizations:

- The civilian workforce does not have the additional responsibilities, such as physical training and protocol duties, required of the military workforce.
- The civilian workforce does not require additional force structure for students, transients, prisoners, patients, and holdees, as the military workforce does.
- Civilians do not need as much on-the-job training.³
- During the conversion process, Services may identify additional efficiencies in work performance or process that enable them to reduce the required workforce.

² See, for example, John E. Whitley et al., "Medical Total Force Management," IDA Paper P-5047 (Alexandria, VA: Institute for Defense Analyses, May 2014); Congressional Budget Office (CBO), *Replacing Military Personnel in Support Positions with Civilian Employees* (Washington, DC: CBO, December 2015); and Office of the Secretary of Defense, "Operation and Maintenance Overview Fiscal Year (FY) 2010 Budget Estimates," June 2009.

³ CBO, *Replacing Military Personnel*.

In our analysis, we conservatively assume a substitution rate of 1:1.25—i.e., only four civilians are needed to substitute for every five military billets. This ratio falls halfway between the low-end possibility of a 1:1 substitution rate and the 1:1.5 substitution rate achieved in the past decade. The 1:1.25 substitution rate accounts for 54 percent of our estimated savings to DoD and 31 percent of our estimated savings to the federal government. In light of these significant potential savings, we add the following recommendation:

- **Recommendation 10:** We recommend the Services civilianize military billets in candidate functional areas—such as, but not limited to, the E&T and P&SS communities—with the goal of balancing capability and capacity while increasing lethality.

Contents

1.	Introduction.....	1
2.	Current and Historical Impediments to Efficient Total Force Management	7
	A. Historical Impediments to Civilianization in DoD	7
	B. Current Impediments to Civilianization	8
	1. Sea-Shore Requirements for the Navy.....	9
	2. Deployability	10
	C. Recommendations for Mitigating Impediments to Civilianization.....	10
3.	Documenting the Current Mix.....	13
	A. FY 2013 IG/CA Inventory.....	13
	1. IG/CA Criteria.....	14
	2. IG/CA Function Codes	19
	B. FY 2013 Inventory of Contracts for Services (ICS).....	21
4.	Potential Savings from Civilianization.....	23
	A. Choice of Functional Areas	24
	1. Analyzing E&T and P&SS.....	24
	2. Deep Dive of Organization Types across Departments.....	25
	B. Identifying Opportunities for Military-to-Civilian Conversions.....	28
	1. Navy Sea Shore Flow Comparison.....	28
	2. Identifying Military Essential Authorizations from the IG/CA Inventory .	31
	C. Estimating the Costs of Civilian and Military Personnel	32
	D. Estimating the Benefits of Military-to-Civilian Conversions	35
	1. The Substitution Rate between Military and Civilian Positions	37
	2. Two Military-to-Civilian Conversion Examples.....	38
	3. Scope for Civilianization by Major Function Code.....	41
	4. Scope for Civilianization by Organizational Form.....	44
5.	Conclusion	53
	Appendix A. List of Recommendations	A-1
	Appendix B. Department Organization Types by E&T and P&SS Sub-functions.....	B-1
	Appendix C. Estimated Savings from Alternate Exclusion Criteria.....	C-1
	Appendix D. Cost Methodology	D-1
	Illustrations	E-1
	References.....	F-1
	Abbreviations.....	G-1

1. Introduction

The Department of Defense (DoD) is responsible for recruiting, retaining, and managing the careers of the nation’s largest workforce to successfully carry out its national defense mission. Three main elements comprise the DoD workforce—military personnel, government civilians (hereafter referred to more simply as “civilians”), and contractors.¹ DoD Instruction (DoDI) 1100.22, *Policies and Procedures for Determining Workforce Mix*, lays out good guidance for determining the most efficient performer of any given requirement.² In that instruction, some positions or functions are considered “military essential when

- Military-unique knowledge and skills are required for performance of the duties;
- Military incumbency is required by law, executive order, treaty, or international agreement;
- Military performance is required for command and control, risk mitigation, or esprit de corps;
- Military manpower is needed to provide for overseas and sea-to-shore rotation, career development, or wartime assignments; or
- Unusual working conditions or costs are not conducive to civilian employment.”

Positions with these characteristics may only be staffed by military personnel. Other positions are “inherently governmental” or “closely associated with inherently governmental” and should be staffed by *the less expensive* of military personnel or civilian personnel after accounting for their full lifecycle costs. Finally, all remaining positions are considered “commercial exempt” and can be staffed with military or civilians, or augmented with contracted services. As with inherently governmental positions, DoDI 1100.22 specifies that commercial positions should be staffed with the least expensive performer.

Each of the three workforce elements—military, civilian, and contractors—is subject to additional legislation, regulation, and policy guidance that often conflict with the guidance laid out in DoDI 1100.22, resulting in inefficient and ineffective management of

¹ Here, we are referring specifically to contractors who provide services to DoD that could potentially be performed by military personnel or government civilians instead.

² Department of Defense Instruction (DoDI) 1100.22, *Policies and Procedures for Determining Workforce Mix*, April 12, 2010.

the DoD workforce. Of particular interest in this paper are the policies that encourage overuse of military personnel in positions that are more efficiently performed by civilians.

For example, in November 2013, the Congressional Budget Office (CBO) published a report detailing a variety of options to reduce the national deficit by 2023, including nine under the Defense category of discretionary spending.³ One option, “Replace Some Military Personnel with Civilian Employees,” stated that DoD could replace 70,000 military personnel in “commercial jobs” with 47,000 civilians, saving around \$20 billion over 10 years.⁴ The report acknowledged that DoD had already carried out similar efforts between 2004 and 2010 to replace 48,000 military billets with 32,000 civilians, and briefly mentioned the benefits (efficiency, continuity, reassigning military personnel to combat duty) as well as some of the drawbacks (career rotation, mobilization potential, and the effect on morale). Two years later, CBO released a more detailed report estimating that converting 80,000 military positions could save between \$3.1 and \$5.7 billion annually.⁵

Despite the potential for monetary savings, the prevailing view of the Defense Department’s civilian workforce has for many years failed to recognize the critical role that civilians play in delivering both operational readiness and mission capabilities. As a result, the perception of a bloated headquarters teeming with civilians does not sit well with many inside the Beltway. In April 2014—less than six months after the initial CBO report—defense analyst Mackenzie Eaglen of the American Enterprise Institute wrote an article insisting that “the Pentagon’s civilian workforce is too big and has been virtually untouched since Defense budgets started falling four years ago.”⁶ She suggested that the Secretary of Defense “must orient civilian worker reductions toward shaping the makeup of the force” and that “the favored solution of cutting combat forces while holding the civilian workforce steady is the wrong answer...the Pentagon and Congress must get serious now about shrinking the almost-800,000 large Defense Department civilian workforce.”

At the beginning of December 2015, the Senate Armed Services Committee (SASC) held a hearing on Defense personnel reform. The climate was less than optimal—fewer troops deployed to overseas contingency operations, planned reductions in the force structure, and increased budgetary pressure all contributed to an environment in which DoD would be expected to operate with fewer dollars and people.

³ Congressional Budget Office (CBO), *Options for Reducing the Deficit: 2014 to 2023* (Washington, DC: CBO, November 2013).

⁴ *Ibid.*, 60.

⁵ CBO, *Replacing Military Personnel in Support Positions with Civilian Employees* (Washington, DC: CBO, December 2015).

⁶ Mackenzie Eaglen, “Cut the Pentagon’s Civilian Workforce,” *Breaking Defense*, last modified April 30, 2014, <http://breakingdefense.com/2014/04/cut-the-pentagons-civilian-workforce>.

During his testimony before the Committee, former Under Secretary of Defense (Comptroller) (USD(C)) Robert Hale noted an apparent double standard for those who serve within the Defense community. “Some in Congress criticize career civilians,” he said, “seemingly treating them not as valued employees, but, rather, as symbols of a government that they believe is too large.”⁷

In recent years, pressure to reduce DoD headquarters’ costs has come from multiple directions, including internal. In March 2015, Secretary of Defense Ashton Carter told the Congress that “civilian workforce reductions need to be part of the Pentagon’s strategy to deal with tightening budgets,” although he also urged members of the Congress to “keep in mind that the vast majority of DoD’s civilian workforce performs functions the department can’t do without.”⁸ During the hearing, Representative Ken Calvert (R-CA) criticized DoD for employing too many civilians at a time when budgetary pressure was reducing the size of the active force:

Since 2001, we’ve cut the active force by 4 percent and we’ve grown the civilian workforce by 15 percent. The ratio of civilian employees to active duty personnel is at its highest since World War II and the civilian workforce has grown every single year since 2003....Bringing that ratio down to its historic norm would save the department \$82.5 billion over five years, which would help alleviate the impact of the [Budget Control Act]. But I cannot get a concession from anyone at DoD that we should have a proportional right-sizing of the civilian workforce.⁹

A year later, in March 2016, USD(C) Michael McCord told the House Armed Services Committee (HASC) that the Department has “instructions, both internal and from the Congress to – to hold down civilian [jobs], you know, to keep – commensurate with draw down in the military, and we recognize that – that mandate.”¹⁰ In frank terms, Secretary Carter explained the monetary tradeoff between personnel costs and investments toward modernization this way: “If we don’t keep working on tail, we’re not going to be able to invest in the tooth.”¹¹

⁷ Stenographic Transcript Before the United States Senate Committee on Armed Services, *Department of Defense Personnel Reform and Strengthening the All-Volunteer Force*, December 2, 2015, 29, <http://www.armed-services.senate.gov/imo/media/doc/15-90%20-12-2-15.pdf>.

⁸ “Carter opens door to more DoD civilian job cuts,” Federal News Radio: 1500 AM, <http://federalnewsradio.com/sequestration/2015/03/carter-opens-door-to-more-dod-civilian-job-cuts/>.

⁹ Ibid.

¹⁰ US House Committee on Armed Services, Testimony Transcript, *The Fiscal Year 2017 National Defense Authorization Budget Request from the Department of Defense*, March 22, 2016, <http://www.cq.com/doc/congressionaltranscripts-4857494?0>.

¹¹ Ibid.

Efforts to reduce DoD headquarters staff predate Carter, however; in 2013, Secretary of Defense Chuck Hagel ordered a 20 percent reduction in headquarters personnel levels across the board,¹² and Hagel's predecessor, Secretary Robert Gates, previously ordered a three-year hiring freeze for civilians in the Office of the Secretary of Defense (OSD), the Joint Staff, and even the geographic combatant commands.

Even with the attention already paid to constraining the size of the Defense establishment's civilian workforce over the last five years, the Fiscal Year (FY) 2016 National Defense Authorization Act (NDAA) directed the Department to cut spending on headquarters, administrative, and support activities by 25 percent over the next five years, and SASC Chairman John McCain (R-AZ) indicated that he would "continue to chip away at Pentagon bureaucracy in the coming year."¹³ Having anticipated the increased scrutiny, Deputy Secretary of Defense Robert Work had already directed the 25 percent reduction in August 2015, before the final version of the NDAA passed.

Such is the story of DoD's relationship with civilianization, boiled down to two opposing forces in an unstable equilibrium—internal pressure to replace military personnel with civilians to preserve resources, and external pressure to reduce civilian staff across the Defense establishment, particularly in times of declining budgets and personnel downsizing. These forces have generally counteracted each other, leading to decades of reports based on the same logical arguments and generating the same conclusions.

The fiscal environment has relaxed considerably in the last couple of years. In January 2017, a presidential memo ordered a "readiness review" in anticipation of future increases in force structure.¹⁴ However, the expectation of "rebuilding the U.S. Armed Forces" did not eliminate the pressure to reduce the civilian workforce. Just a few days earlier, a presidential memo instituted a 90-day hiring freeze of all federal civilian employees.¹⁵ In April 2017, the Office of Management and Budget (OMB) issued a memo lifting the hiring freeze and instructing all federal agencies to develop agency reform plans that would lead

¹² Craig Whitlock, "Hagel orders 20 percent cut in Pentagon top brass, senior civilians," *The Washington Post*, July 16, 2013, https://www.washingtonpost.com/world/national-security/hagel-orders-20-percent-cut-in-pentagon-top-brass-senior-civilians/2013/07/16/7a004788-ee56-11e2-8163-2c7021381a75_story.html.

¹³ Tony Bertuca, "Pentagon staff sizes remain under fire as CBO sees potential savings," *Inside Defense*, December 9, 2015, <http://insidedefense.com/inside-pentagon/pentagon-staff-sizes-remain-under-fire-cbo-sees-potential-savings>.

¹⁴ Donald Trump, National Security Presidential Memorandum, "Rebuilding the U.S. Armed Forces," January 27, 2017, *Federal Register* 82, no. 20 (25 January 2017): 8493–4, <https://www.gpo.gov/fdsys/pkg/FR-2017-01-25/pdf/2017-01842.pdf>.

¹⁵ Donald Trump, National Security Presidential Memorandum, "Hiring Freeze," January 23, 2017, *Federal Register* 82, No. 15 (1 February 2017): 8493-4, <https://www.gpo.gov/fdsys/pkg/FR-2017-02-01/pdf/2017-02282.pdf>.

to long-term reductions in the overall size of the federal civilian workforce.¹⁶ DoD submitted a workforce rationalization plan to OMB in September 2017 defending its civilian workforce as a critical component of a Total Force that serves alongside Active and Reserve military as well as contracted services.¹⁷ The workforce rationalization plan warns against the consequences of arbitrary reductions of the civilian workforce without considering how it functions in relation to the other Total Force elements; “[t]o do so invites the use of military manpower or contracted services to assume workload more appropriately performed by civilians... which will increase the likelihood of hollowing the force, or ... diverting scarce resources from key readiness recovery, recapitalization, and modernization accounts.”

In the remainder of this paper, we examine the challenges facing the military departments as they attempt to build and manage an efficient workforce in the face of significant obstacles. Chapter 2 identifies these persistent obstacles to DoD’s civilianization efforts. Chapter 3 documents the current workforce mix across functional areas in the three military departments. In Chapter 4, we estimate the potential savings from civilianizing 21 sub-functions within the functions of education and training (E&T) and personnel and social services (P&SS). Chapter 5 concludes.

¹⁶ Memorandum from Mick Mulvaney, Director, Office of Management and Budget, to Heads of Executive Departments and Agencies, “Comprehensive Plan for Reforming the Federal Government and Reducing the Federal Civilian Workforce,” April 12, 2017, <https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/memoranda/2017/M-17-22.pdf>.

¹⁷ DoD, “DoD Workforce Rationalization Plan,” September 18, 2017.

2. Current and Historical Impediments to Efficient Total Force Management

For any military-to-civilian conversion effort to be successful, DoD must first recognize and address the challenges that force managers face in building and managing an efficient force mix. In this chapter, we summarize a review of challenges DoD has already faced in past civilianization efforts, and we summarize continuing impediments to civilianization and effective total force management identified in interviews with Service manpower analysts.

A. Historical Impediments to Civilianization in DoD

To understand why civilianization remains a challenge, we traced the outcome of DoD's efforts to convert military personnel authorizations in non-military essential positions to government civilians, beginning in the 1960s. This review—available in greater detail in a companion paper¹⁸—identified six recurring issues that have consistently undermined civilianization efforts in the past 50 years:

- The lack of a consistent methodology to determine military essentiality for specific positions and functions across the Services;
- The lack of a unified, holistic approach to determine DoD military and civilian personnel requirements and, importantly, budget allocations;
- The critical role of congressional legislation, from capping civilian authorizations to prohibiting conversions in certain career fields, in the outcomes of conversion efforts;
- Military Service concerns, rooted in historical precedent, about losing converted positions due to decreased civilian personnel ceilings caused by pressure to reduce overhead and Pentagon civilian staff;
- Manpower gaps that emerge while executing conversions, where military billets have been civilianized but civilian replacements have not yet filled the converted positions; and

¹⁸ David Eisler, "A Brief History of Military-to-Civilian Conversions in the Department of Defense, 1965–2015," IDA Paper P-5357 (Alexandria, VA: Institute for Defense Analyses, March 2017).

- Other human resource and management factors beyond cost—including mobilization potential, unit morale, and career progression—that affect the decision to employ military versus civilian manpower to perform a specific function.

In spite of these obstacles and challenges, DoD *has* successfully substituted civilians for military personnel in support positions, saving the government money and shifting military personnel back into combat units to support deployments and rotations overseas. The extent of these successes, though, is neither well documented nor indicative that such efforts have reached a limit to their potential benefits.

Illuminating the historical context arms DoD with the background knowledge that enables future manpower efficiency initiatives to consider the many facets of this important issue. Overcoming 50 years of persistent challenges will not be easy, nor will success occur overnight. Future attempts to find potential savings from civilianization should be mindful of this history and address the factors that have stifled such programs in the past.

Although achieving an efficient mix of military and civilian manpower within the Defense establishment is influenced by the ever-changing tug-of-war between balancing requirements and reducing costs, there is enough evidence to suggest that pursuing such a goal, including through civilianization, remains as important today as it was in 1965.

B. Current Impediments to Civilianization

In our interviews with Service manpower analysts, we found that many of the obstacles to civilianization identified in the historical review either remain unchanged today or have shifted to a slightly modified form. Across the Services, the following general conditions hold:

- The current incentive structure for each of the Services favors safeguarding military authorizations, which are politically more difficult to cut than civilian full-time equivalents (FTEs), particularly with the military pay account's exemption to the Budget Control Act.
- Civilian hiring freezes mean that no new civilian manpower will be available for converted positions.

These additional constraints on civilian FTEs incentivize the Services to use contracted services for functions that were previously performed by either military or civilian personnel, despite prohibitions on outsourcing work designated for civilian performance. In addition, separate budgetary and appropriations processes for funding military and civilian personnel also impede civilianization efforts—the Services continue to fear that civilian substitutes for any converted military positions will not be funded. In addition, manpower analysts noted that work requirements typically exceed available

resources, reducing the incentive to identify billets for conversion. There is also a belief that military personnel are generally easier to use based on flexibility and operational needs.

Funding mechanisms also mean that, from the Services' perspectives, using contracted services to perform work formerly done by military personnel is often easier than hiring civilians. Further, the political restrictions on Service hiring practices introduce additional inefficiency into the total workforce mix by specifying reduction percentages for military and civilian personnel, and contracted spending separately—often for each Service—and without regard to existing or projected work requirements.

Finally, the management of separate military and civilian budgets at different levels in the DoD hierarchy obscures visibility into the true costs of military and civilian personnel at the installation level. Consider an installation that operates with funding from the Operations and Maintenance (O&M) budget to accomplish its objectives. For positions that are not military essential, this installation can choose to use a portion of its budget to recruit and employ civilians and contractors—or it can request military personnel from the Service leadership. The military personnel budget (MILPERS) is managed at the Service leadership level, separate from O&M, so any military personnel employed by the installation represent a savings to its O&M budget that it can use in other ways to accomplish its objectives. Consequently, even though the total cost of the military personnel to DoD is often much higher than the cost of comparable civilian personnel, installations face incentives to fill their workforces with military personnel first so that their budgets will stretch farther.

1. Sea-Shore Requirements for the Navy

While all the Services require some billets to be reserved for military for the purposes of career rotation and progression, the Navy faces the additional challenge of finding adequate shore duty rotations to support sailors between sea tours. In particular, it is important for sea-centric ratings to have “meaningful” shore duty rotations that contribute to career progression and professional development.

The Sea Shore Flow model, which replaced the Sea Shore Rotation model in 2008, is the Navy's primary method for allocating its workforce mix between military and civilian personnel. The model considers Navy military personnel by rating and calculates the minimum number of shore billets needed to sustain the sea force for specific job functions and sea tour lengths. The ratio of sea duty to shore duty is a policy decision and plays a large role in how billets are allocated.

In interviews Navy manpower analysts identified a few additional obstacles to civilianization, including “distribution friction” caused by increasing sea duty tours—as not all of the Navy's personnel are trained to the same ship type—and the Community

Health Assessment’s constraint on the number of potential convertible billets from support billets reserved for military personnel coming off a sea tour.

2. Deployability

Despite Department-level guidance and instructions that attempt to lay out the exact meaning of military essentiality, there does not seem to be a standard method across the Services to identify functions and billets that are, in fact, military essential. Yet the concept of military essentiality is at the core of any civilianization effort.

In the past, deployability has often served as a proxy for military essentiality. The ability under US law to order military personnel into combat zones is an important distinction between military and civilian personnel. However, the thousands of civilian contractors that deployed to hostile combat zones in supporting roles since 2003 reveal that many civilians are willing to work in combat zones without traditional military orders.¹⁹ The Services’ experiences relying on deployed contractors have two important implications about military essentiality. First, an examination of some of these “deployable” support positions filled by civilians during the conflicts in Iraq and Afghanistan may show that many do not need to be military-only after all. Some of these positions could be staffed by civilians who agree to deploy if necessary as a condition of employment. Second, to the extent that some of these contractors were performing work that should have been performed only by military personnel for legal or other reasons, the huge reliance on deployed civilian contractors over this period highlights the importance of reserving military personnel for positions that are genuinely military essential. The more that military personnel are tied up performing duties that are more appropriate for civilian personnel, the greater the risk of having to outsource military-only roles to inappropriate labor sources.

C. Recommendations for Mitigating Impediments to Civilianization

Workforce mix is often managed as a “top-down” problem in which the Congress and Department senior leaders attempt to address real or perceived inefficiencies by adjusting or constraining military and civilian personnel counts in the aggregate—putting caps on end strength, freezing hiring, etc. Because they do not address the underlying incentive problems that lead to the overuse of military personnel, we have found these top-down approaches often have the opposite of the intended effect—by increasing the vulnerability of the civilian workforce to cuts without regard to actual requirements, the Services are

¹⁹ Defense Science Board Task Force on Contractor Logistics, “Contractor Logistics in Support of Contingency Operations” (Washington, DC: Defense Science Board, June 2014), https://www.acq.osd.mil/dsb/reports/2010s/CONLOG_Final_Report_17Jun14.pdf.

incentivized to protect their workforce by putting it in uniform, compromising the actual “lethality” of the military.

A better approach for efficient workforce management recognizes that “bottom-up” solutions are required that identify the missions, tasks, functions, and resulting workload requirements first, without regard to the eventual labor source. These personnel requirements can then be compared to accepted standards for military essentiality and inherently governmental activity to identify where positions should be filled by military personnel, civilian personnel, or contractors. To accomplish these objectives, we provide the following recommendations:

- **Recommendation 1:** Avoid implementing arbitrary cuts in the civilian workforce. DoD cannot prevent the Congress from imposing personnel caps and conversion bans, but it can make clear that such actions are serious impediments to rational workforce management.
- **Recommendation 2:** Tie end-strength increases to operational force structure requirements and accepted military essentiality arguments, while recognizing the intrinsic role of civilians as a part of operation capabilities.
- **Recommendation 3:** Develop a more aligned and enterprise-wide taxonomy for documenting mission, task, functions, and workload requirements, without regard to the eventual labor source.
- **Recommendation 4:** Establish a governance process within the construct of DoD’s Planning, Programming, and Budgeting Execution (PPBE) process and readiness reporting that facilitates a more consistent application of military essentiality, ensuring that demands for military manpower are coordinated and the military incumbency is warranted, informed by mission, task, function analysis, and/or a business case.

A bottom-up management approach is unlikely to be effective unless the environment in which people make workforce mix decisions changes. DoD leadership must address the challenges managers face in switching between labor types. Even in the absence of top-down constraints such as conversion bans and hiring freezes, personnel managers still face challenges in civilianizing existing military positions and employing additional civilians. To address one of these challenges, our fifth and sixth recommendations are to ensure funding for new civilian personnel whenever the Services initiate military-to-civilian conversions to improve workforce efficiency. If military end strength is eliminated in the conversions, an increase in the civilian budget (CIVPERS) could be offset by the expected reduction in the MILPERS budget. If the converted military end strength is instead kept and reallocated to increase the overall share of the military in combat-related positions, an aggregate increase in personnel budgets will be required. However, even in this latter case where CIVPERS increases and MILPERS does not change, an efficient military-to-civilian

conversion will increase the combat power of the military at a lower cost than buying new military end strength.

- **Recommendation 5:** Ensure funding for civilian positions resulting from military-to-civilian conversions for a determined period of time.
- **Recommendation 6:** Ensure there are no gaps in funding during military-to-civilian conversions.

Military-to-civilian conversions are a reasonable short-run tool for fixing existing inefficiencies in the workforce mix. However, to maintain efficiency over the long run, it is worth examining whether there are opportunities to incentivize installations to employ the most efficient workforce mix types within the constraints of military essentiality. Our seventh recommendation is to consider integrating the funding of military and civilian personnel, so that local employers have better visibility into the relative costs of each manpower type. For example, DoD could set up working capital funds so that local commanders must pay for military personnel out of their budgets just as they do for civilian personnel and contractors. Moving the budget for military personnel to the organizational level, like the budget for government civilians, would be a major change. But it would dramatically alter incentives.

- **Recommendation 7:** Consider integrating the funding of military and civilian personnel to improve visibility into the costs of alternative personnel types. Pilot programs could test ways of implementing decentralized military manpower budgeting.

3. Documenting the Current Mix

Before assessing where there may be opportunities to replace military authorizations with civilians, it is helpful to document the current workforce mix across the departments. (For the remainder of this analysis, we will evaluate departments instead of Services—combining the Navy and the Marine Corps into the Department of the Navy—since Navy personnel supply many of the support functions within the Marine Corps.) To identify the current workforce mix, we rely primarily on two data sources: the FY 2013 Inherently Governmental and Commercial Activities (IG/CA) inventory dataset,²⁰ which reports the number of military and civilian FTE authorizations, and the FY 2013 Inventory of Contracts for Services (ICS), which reports service contractor FTEs.²¹

The inclusion of contractor FTEs in this report is an important contribution—while many of the studies cited previously have mentioned that contractors are an important consideration in any workforce mix analysis, none of them actually included data on contractors in their comparisons of Service mixes.

A. FY 2013 IG/CA Inventory

The IG/CA inventory dataset aggregates military and civilian authorizations across the Defense establishment, using multiple categories and attributes to provide a more detailed view of DoD manpower. For each authorization, the IG/CA includes information on the name of the unit or organization to which the billets are allocated, the type of function performed, whether the billet is Active military, Reserve Component, or government civilian, and what criteria code—according to DoD Instruction 1100.22—the responsible official used to determine whether the billet should be coded as military or civilian.

For this paper, we look only at Active Duty and civilian authorizations located in the continental United States (CONUS). We omit authorizations that are classified as foreign

²⁰ FY 2013 inventories were the most readily available to us at the time we performed the analyses in this study.

²¹ According to a March 2014 memo signed by Acting Under Secretary of Defense for Personnel and Readiness Jessica Wright and Under Secretary of Defense for Acquisition, Technology, and Logistics Frank Kendall entitled “Guidance for Submission and Review of the FY 2013 Inventory of Contracts for Services,” a Contractor FTE is a “standard measure of labor that equates to one (1) year of full-time work... to support a mission requirement.”

nationals, transients, patients, prisoners, holdees, students (including cadets and midshipmen), and trainees.

Because the military Services code their manpower authorizations differently, documenting the mix of Active military and civilian personnel in each of the IG/CA inventory's function groups requires some additional accounting.

Three data fields in the IG/CA inventory identify the uniformed Service affiliation of Active military authorizations: *Service*, *DoD Component*, and *Assigned From*. The Office of the Under Secretary of Defense for Personnel and Readiness (USD(P&R)) publishes an annual memorandum with definitions and instructions on how to use these data fields (and others) to compile and submit the inventory data. Nonetheless, there appear to be inconsistencies across the Services. Most of the Army's authorizations are identified with the *Service* field. In contrast, the Air Force, Navy, and Marine Corps identify most of their authorizations within their respective *DoD Component* codes. Each of the four Services codes a small number of authorizations with the *Assigned From* field, which corresponds to military personnel assigned to Defense agencies and field activities (e.g., an Army officer assigned to the Defense Logistics Agency).

In order to account for each Service's military authorizations in their entirety, we created a new variable that codes the authorization's Service by checking each of the three fields identified above. This variable is then used when documenting the mix of Active military and civilian authorizations for each function in the IG/CA inventory.

Similarly, government civilians are also coded within the IG/CA inventory according to which military Service they work for whenever applicable. As with the military authorizations, Army civilians are identified with the *Service* variable, while the Air Force, Navy, and Marine Corps civilians are found within their respective *DoD Component* codes. All other civilians are coded in our analysis as "Defense-wide" if there is no corresponding Service identifier. Since the focus of this paper is the military-civilian mix within departments, we also exclude these "Defense-wide" civilians.

1. IG/CA Criteria

DoDI 1100.22, *Policy and Procedures for Determining Workforce Mix*, provides guidance and standards for manpower mix criteria within the IG/CA inventory. Manpower analysts must assess what type of function a given authorization performs and distinguish between inherently governmental and commercial functions. The instruction specifies what it means for a function to be inherently governmental:

In general, a function is IG if it is so intimately related to the public interest as to require performance by Federal Government personnel. IG functions shall include, among other things, activities that require either the exercise of substantial discretion when applying Federal Government authority, or

value judgments when making decisions for the Federal Government, including judgments relating to monetary transactions and entitlements.²²

Note that the designation of inherently governmental does not distinguish between military and government civilian performance. The criteria codes are designed in part to specify what happens to military and civilian manpower in the event of a national emergency or mobilization. Within that context, the criteria codes provide the rationale for why these positions are inherently governmental (either military or government civilian) versus commercial, but they do not necessarily provide guidance on which positions are military essential.

Table 1 lists the IG/CA criteria codes with short descriptions based on an interpretation of each criteria code's description in the guidance document.²³ The 15 criteria are divided into three main groups: inherently governmental (four), exempt from public-private competition (e.g., for positions that may be needed to deploy during a national emergency or that may be required for career management) (eight), and commercial activities subject to further review (three). Enclosures 3 and 4 of DoDI 1100.22 describe each of these manpower mix criteria in detail.

²² DoDI 1100.22, 13.

²³ We omit criterion W, Non-Packageable Commercial Activity, from the rest of the discussion because there are no authorizations in our sample labeled with this criterion.

Table 1. IG/CA Manpower Mix Criteria Code Descriptions

Criteria Code	Criteria Title	Description	Classification
A	Direction and Control of Combat & Crisis Situations	Ability for direct participation in a theater of war or hostile environment	Inherently governmental
B	Exemption of Combat Support & Combat Service Support due to Operational Risk	Core military capabilities; operating environment could become hostile	Exempt from public-private competition
D	Exemption of Manpower Dual Tasked for Wartime Assignment	Mobilization and surge capacity in the event of a national crisis or emergency; positions are eliminated or replaced by reserve/civilians/private sector during war	Exempt from public-private competition
E	DOD Civilian Authority, Direction, and Control	Leadership and discretionary control of defense missions, functions, and policy	Inherently governmental
F	Military Unique Knowledge and Skills	Training and skills cannot be acquired from private sector; positions not vacated during national emergency	Inherently governmental
G	Exemption for Esprit de Corps	Build military cohesion; recruitment and retention; not dual-tasked for wartime assignment	Exempt from public-private competition
H	Exemption for Continuity of Infrastructure Operations	Key manpower positions that cannot be vacated during national emergency	Exempt from public-private competition
I	Military Augmentation of the Infrastructure During War	Backfills positions in Infrastructure vacated during national emergency	Inherently governmental
J	Exemption for Civilian and Military Rotation	Non-permanent positions typically served between OCONUS tours of duty	Exempt from public-private competition
K	Exemption for Civilian and Military Career Development	Formal development programs for skills that cannot be acquired from private sector	Exempt from public-private competition
L	Exempt by Law, Executive Order, Treaty, or International Agreement	Positions with access to DoD installations and information	Exempt from public-private competition
M	Exempted by Management Decision	Potential security risk if filled by private sector (awaiting assessment)	Exempt from public-private competition
P	Pending Restructuring of Commercial Activities	E.g., base closures, force structuring decision	Commercial activities subject to further review
R	Subject to Review for Public-Private Competition	Subject to cost comparisons; no viable commercial alternatives	Commercial activities subject to further review
X	Alternatives to Public-Private Competition	Potential for conversion using alternate means than Office of Management and Budget (OMB) Circular A-76 competition	Commercial activities subject to further review

Table 2 lists the FY 2013 military-civilian mix of each department by the IG/CA criteria. While the military-civilian mix across criteria varies considerably, both within

each department and summarized across the total inventory, the aggregate mix is fairly consistent across the departments, with Active Duty personnel making up between 57 and 65 percent of the total (CONUS) inventory. The two largest criteria (Direction and Control and Continuity of Infrastructure Options) account for half of military and civilian authorizations, and the top six criteria (the previous two plus DoD Civilian Authority, Military Unique Knowledge and Skills, Operational Risk, and Dual Tasked for Wartime Assignment) account for 85 percent of military and civilian authorizations. In Chapter 4, we will revisit this distribution of criteria codes to identify two analysis groups that will form the basis of our assessment of the potential scope for civilianization in a few specific functional areas.

Table 2. FY 2013 Military-Civilian Workforce Mix by Department and IG/CA Criteria (CONUS)

Code	Army		Navy		Air Force		Total		
	Active	Civilian	Active	Civilian	Active	Civilian	Active	Civilian	% Active
A Direction and Control of Combat & Crisis Situations	282,455	0	228,291	90	42,036	127	552,782	217	100%
B Exemption of Combat Support & Combat Service Support due to Operational Risk	3,412	2,075	28,341	6,363	73,688	4,262	105,441	12,700	89%
D Exemption of Manpower Dual Tasked for Wartime Assignment	18,424	72	15,272	700	31,854	29,704	65,550	30,476	68%
E DOD Civilian Authority, Direction, and Control	0	29,766	0	92,094	1	60,345	1	182,205	0%
F Military Unique Knowledge and Skills	53,115	0	36,181	8	54,094	0	143,390	8	100%
G Exemption for Esprit de Corps	882	350	10,697	24	2,086	369	13,665	743	95%
H Exemption for Continuity of Infrastructure Operations	9,252	131,677	1,517	39,374	82	28,904	10,851	199,955	5%
I Military Augmentation of the Infrastructure During War	0	0	19	0	872	0	891	0	100%
J Exemption for Civilian and Military Rotation	5	4	15,251	158	3,606	379	18,862	541	97%
K Exemption for Civilian and Military Career Development	5,602	1,504	8,495	2,367	1,521	2,622	15,618	6,493	71%
L Exempt by Law, Executive Order, Treaty, or International Agreement	3,783	34,531	11,375	12,143	61	12,679	15,219	59,353	20%
M Exempted by Management Decision	3,950	546	139	144	0	1,838	4,089	2,528	62%
P Pending Restructuring of Commercial Activities	0	1,023	658	625	0	0	658	1,648	29%
R Subject to Review for Public-Private Competition	5	14,178	10,332	41,560	855	15,732	11,192	71,470	14%
X Alternatives to Public-Private Competition	0	0	18	335	0	0	18	335	5%
Total	380,885	215,726	366,586	195,985	210,756	156,961	958,227	568,672	
% Active	64%		65%		57%		63%		62%

2. IG/CA Function Codes

In addition to setting up manpower mix criteria codes, the IG/CA inventory also classifies each authorization into 18 major function codes and 300 sub-functions. Table 3 lists the military-civilian mix of each department by the major function codes. As with the criteria codes, there is a lot of variation in the military-civilian mix within and across functions. The four functional areas with the most Active Duty billets are Expeditionary Force Defense, Operating Forces; E&T; Health Services; and P&SS. These four functional areas represent 87 percent of CONUS Active Duty authorizations and 66 percent of the three departments' combined total of Active Duty and civilian personnel.

In coordination with our sponsor, we identified E&T and P&SS as the best functional areas to investigate further to estimate the potential gains from civilianization. While the Expeditionary Force Defense, Operating Forces area alone makes up 71 percent of all CONUS Active Duty personnel, the bulk of these authorizations are likely to consist of military essential functions.²⁴ Health Services is an interesting and important category, but there are already several studies on the workforce mix in this function.²⁵ In Chapter 4, we discuss the additional analysis and results of our civilianization excursion for the E&T and P&SS functional areas.

²⁴ It would be an interesting question for further research to investigate how the Air Force is able to staff these functions with 25 percent civilians, while the other departments' staffing is nearly 100 percent military.

²⁵ For example, see John E. Whitley et al., "Medical Total Force Management," IDA Paper P-5047 (Alexandria, VA: Institute for Defense Analyses, May 2014) and Sarah K. Burns et al., "Analysis of Army Medical Department Civilian Workforce," IDA Paper D-5237 (Alexandria, VA: Institute for Defense Analyses, August 2014).

Table 3. FY 2013 Military-Civilian Workforce Mix by Department and IG/CA Function Codes (CONUS)

Function	Army			Navy			Air Force		
	Active	Civilian	% Active	Active	Civilian	% Active	Active	Civilian	% Active
Civil Works	9	38	19%	1	5	17%	17	93	15%
Command and Intelligence	2,711	1,106	71%	5,491	1,565	78%	5,600	1,278	81%
Communications, Computing, and Other Info. Services	2,014	9,253	18%	3,449	7,688	31%	2,091	2,808	43%
Cyberspace Operations, Operating Forces	507	166	75%	596	376	61%	145	65	69%
Education and Training	29,244	13,811	68%	27,453	6,501	81%	13,269	6,486	67%
Environmental Security & Natural Resource Services	170	3,344	5%	801	3,863	17%	655	1,791	27%
Expeditionary Force Defense, Operating Forces	284,599	940	100%	252,418	7,264	97%	147,822	50,394	75%
Force Management and General Support	11,257	38,385	23%	10,386	22,555	32%	9,295	18,765	33%
Health Services	19,988	30,618	39%	16,567	9,234	64%	9,335	5,633	62%
Homeland Defense, Operating Forces	215	61	78%	477	2	100%	222	8	97%
Installation/Facility Management, Force Protection, and Utility Plant O&M	1,488	15,165	9%	9,007	14,542	38%	546	4,210	11%
Logistics	8,778	49,777	15%	18,098	48,350	27%	8,590	36,388	19%
Personnel and Social Services	16,762	14,762	53%	16,151	9,389	63%	4,451	7,695	37%
Products Manufactured or Fabricated	18	2,937	1%	1	383	0%	1	35	3%
Real Property Project Management, Maintenance, and Construction	121	7,642	2%	601	7,368	8%	138	4,178	3%
Science & Technology and Research and Development Management and Support	1,174	11,026	10%	764	15,524	5%	1,023	4,098	20%
Space Defense, Operating Forces	77	85	48%	103	44	70%	159	7	96%
Systems Acquisition, T&E, Engineering and Contracting	1,753	16,610	10%	4,222	41,332	9%	7,397	13,029	36%

B. FY 2013 Inventory of Contracts for Services (ICS)

The ICS is a report of the service contracts executed during FY 2013 that associates the number of contractor FTEs across 32 individual DoD components. Like the IG/CA, the ICS categorizes contracted services by functional area and is intended to assist with total workforce planning. For each service contract, the ICS reports the estimated number of contractor FTEs in FY 2013, the contract number, the funding agency, the requiring organization, the invoiced amount, the place of performance (by country, state, and ZIP code), the product service category, and various contract characteristics (e.g., type of contract and the extent competed). As with the IG/CA data, we limit the sample of contracts for services to those that have a CONUS place of performance. Table 4 lists the product service categories included in the ICS by department.

Table 4. FY 2013 Contractor FTEs by ICS Product Service Category and Department

Product Service Code	Army	Navy	Air Force
Architect and Engineering—Construction	3,387	2,188	1,087
Automatic Data Processing and Telecommunication	6,814	16,555	8,319
Construction of Structures and Facilities	1,248	0	0
Education and Training (E&T)	7,319	3,153	1,368
Installation of Equipment	292	466	284
Lease/Rental of Equipment	92	0	0
Lease/Rental of Facilities	72	0	0
Maintenance, Repair or Alteration of Real Property	2,615	10,062	1,498
Maintenance, Repair, and Rebuilding of Equipment	15,867	36,463	29,392
Medical Services	4,031	3,514	141
Modification of Equipment	410	3,884	434
Natural Resources and Conservation	785	1,214	572
Operation of Government Owned Facilities	6,855	7,759	4,110
Photographic, Mapping, Printing and Publications	163	64	51
Professional, Administrative, and Management Support	45,253	39,216	30,965
Purchase of Structures and Facilities	18	6	0
Quality Control, Testing, and Inspection	700	2,366	434
Research, Development, Testing & Evaluation	17,356	28,094	34,531
Salvage Services	81	66	3
Social Services	148	200	58
Special Studies and Analysis – Not R&D	1,724	1,382	890
Technical Representative Services	4,194	2,022	811
Transportation, Travel & Relocation (excluding freight)	766	582	283
Utilities and Housekeeping Services (excluding utilities)	7,428	15,200	7,774
Total Contractor FTEs	127,617	174,456	123,004

Many of the product service categories do not line up perfectly with the IG/CA categories (perhaps reflecting a reasonable lack of overlap between governmental and commercial functions), but two product service categories—E&T and Social Services—line up nicely with the two functional areas to be discussed in more detail in the next chapter.

4. Potential Savings from Civilianization

In this chapter, we assess the potential savings from converting military billets to civilian. One of the difficulties facing an analyst attempting to determine the potential outcomes for civilianization is how to aggregate billets. With so much diversity across units, organizations, functional areas, and departments, a complete billet-level review is clearly beyond the scope of this effort. At an aggregate level, it is much more challenging to identify military billets that could be more efficiently filled by civilians.²⁶ In this paper, we identify the potential scope for civilianization by comparing the workforce mix across military departments by functional area. We estimate savings from a notional excursion in which the military departments convert military billets until the military's share of their workforce mix for each of the analyzed functions matches that of the least military-intensive department.

This approach relies on the assumption that the least military-intensive workforce mix is a reasonable starting point for identifying an efficient mix. This assumption is necessarily limited—differences in workforce mix across military departments may be driven in part by differences in the departments' missions and, given the persistent challenges to efficient total force management identified in Chapter 2, it is likely that in some functional areas even the least military-intensive workforce mixes have some room to civilianize further. Consequently, the proposed military-to-civilian conversions in this chapter are approximations intended to demonstrate the *potential scope* for savings from civilianization; we are not prescribing an *actual* workforce mix.

While this research is not the first to use this approach to estimating potential savings from civilianization,²⁷ we have improved on previous efforts in two important ways. First, we are taking advantage of the criteria information in the IG/CA inventory. While this is an imperfect substitute for military essentiality, it is still a significant improvement over the raw department workforce mix averages. Second, we are accounting for the contribution that contractors make to the workforce mix, giving us a better accounting of the true percentage of each functional area that is being performed by military personnel.

²⁶ It is also possible that military billets might be more efficiently filled by contractors in some circumstances; however, an assessment of the benefits of converting some positions to (or from) contractors is beyond the scope of this particular research.

²⁷ E.g., Whitley et al., "Medical Total Force Management."

A. Choice of Functional Areas

1. Analyzing E&T and P&SS

As mentioned in Section 3.A.2, we used the FY 2013 IG/CA inventory and initially focused on two of the 18 overarching function groups—E&T and P&SS. We focused on these two functional areas for two main reasons: these functional areas are generally not related to combat or likely to require significant deployments, and there is a reasonable amount of variation in workforce mixes across the military departments—suggestive of potential opportunities to increase the role of civilians in departments with more military-intensive mixes. The variation in workforce mix is a less dramatic number in E&T than it is in P&SS, but with nearly 70,000 military authorizations, even relatively small changes in the E&T workforce mix could generate significant savings.

Based on discussions with various DoD officials, we narrowed our analysis to four E&T sub-functions (out of a total of 27) and 11 P&SS sub-functions (out of a total of 23), using the following criteria:

- Each area's total number of Active Duty authorizations,
- The ratio of Active Duty military to civilian/Guard/Reserve manpower,
- The general nature of the work performed in each functional area,
- The level of geographic or unit dispersion in authorizations,
- Active Duty criteria coding, and
- Gross variations in Active Duty mix between the departments.

Even so, caution must be applied when comparing the Active Duty mix across departments, as functional area coding inconsistencies between the departments may obscure the true number of authorizations in a given area, thus rendering direct assessment problematic. Table 5 lists the analyzed sub-functions within their functional areas. Authorizations in these sub-functions form the basis of the remaining analysis, except where otherwise noted. The differences in coding across the Services are not surprising—decentralized execution of the data call, combined with the volume of data collected, means that individual manpower analysts may interpret the workforce mix guidance differently and interpret code authorizations in a manner that, while consistent with the policy, ends up inconsistent across the entire dataset. Our eighth recommendation—to standardize the reporting criteria across the Services—will improve the utility of the IG/CA dataset for future manpower assessments.

- **Recommendation 8:** Standardize the reporting and coding criteria in future revisions of DoDI 1100.22 for manpower analysts across the Services and at the lowest organizational level possible.

Table 5. Analyzed Sub-Functions

Functional Area	Sub-Functions by Category	Function Code
E&T	(no category)	
	• Specialized Skill Training	U300
	• Medical Training, Education, and Development	U600
	Curriculum Development:	
	• Training Development and Support for Military Education	U550
	• Military Institutional Education and Training Management	U050
P&SS	Human Resources:	
	• Military Personnel Operations	B830
	• Military Recruiting and Examining Operations	B820
	• Other Personnel Activities	B999
	Morale and Social Support:	
	• Management Headquarters, Community and Family Services	G050
	• Family Center Services	G060
	• Morale, Welfare, and Recreation Services	G055
	• Personnel Social Action Programs	B920
	• Other Social Services	G999
	Convenience Services:	
• Postal Services	G210	
• Military Exchange Operations	G013	

2. Deep Dive of Organization Types across Departments

With these sub-functions selected, we then looked at the types of organizations in each department performing them. The IG/CA dataset allows us to aggregate manpower authorizations at the unit/organization level. Combining these organizations into broader categories in which the units perform similar kinds of functions gives us better visibility of the workforce mix differences across departments and allows us to ignore some of the geographical dispersion that obscures the true magnitude of how many military and civilian personnel are performing specific functions.

The following seven categories group units and organizations whose personnel perform similar functions across the military departments, taken from the selection described above. These are neither standard definitions nor official categories within the IG/CA, but rather an analytical attempt to provide comparative insight for our research. In many cases, the decision to include an organization under one of the categories was a judgment call based on the information available about the particular unit listed in the IG/CA as well as whatever additional details could be found online, including unit web pages and DoD guidebooks. As such, the numbers in the results section that follows should be considered as a first approximation.

a. Recruiting

Organizations with the primary mission of recruiting and processing enlistees into their respective military Service were categorized as Recruiting. These included Army recruiting battalions and brigades; Navy and Marine Corps recruiting districts, processing stations, and stations; and Air Force recruiting squadrons.

b. Military Skills Training

Organizations that provide military training and education beyond initial entry training are included in this category. For the Army, this includes organizations such as the Infantry School, the Artillery School, and the John F. Kennedy Special Warfare Center. For the Navy, geographically dispersed locations have been aggregated to include, for example, the Nuclear Power Training Units, Afloat Training Groups, and Trident submarine training facilities.

Like the Navy, the Air Force also has many training locations across the country. These include units within the command structure of the 2nd Air Force and its subordinate 17th, 81st, and 82nd Training Wings, among others. The units are responsible for functions such as technical training, maintenance training, air crew training, and security forces training.

Marine Corps units in this category are similar to the Army—for example, the Basic School for newly commissioned officers, the Communications-Electronics School, and the School of Infantry.

c. Headquarters Support

Headquarters Support organizations fall into two main categories: deployable units within the individual Service's combat force structure, and non-deployable administrative headquarters providing administrative support to the force. The latter is more typical, although the Army has a significant number of "augmentation units" within deployable Forces Command units.

Other examples of Headquarters Support organizations are the Army National Guard Readiness Center and the Training and Doctrine Command (TRADOC) headquarters; the Navy's Fleet Forces Command; and numerous Air Force headquarters elements, including Space Command, Mobility Command, and Air Combat Command.

d. Installation Support

Unlike the Headquarters Support category, Installation Support organizations are not tied to a specific unit. These are Army garrisons, Navy personnel support activities and air stations, Marine Corps air stations and bases, and Air Force air base wings.

e. Training Centers

Training Centers function as management organizations responsible for supporting military skills training and schools through curriculum development, human resources oversight, and administrative support. Only the Army and the Navy appear to be organized this way—the Army’s military occupational specialty training is task-organized under eight Centers of Excellence subordinate to the TRADOC Combined Arms Center. The Navy also has numerous training centers and training commands, such as the Naval Air Technical Training Center (NATTC) and the Naval Air Training Command (NATC), although they are not centrally organized like the Army, but instead spread across multiple geographic locations to support on-site military skills training.

f. Training Support

For the Army and Marine Corps, Training Support units are primarily headquarters elements within training brigades and military occupation schools. For example, the 171st Infantry Brigade at Fort Jackson, SC, supports initial entry training for new Army recruits. Similarly for the Marine Corps, a Headquarters and Support Battalion supports the School of Infantry.

The Air Force, conversely, specifically identifies Training Support Squadrons within each of their Training Groups. For example, the 367th Training Support Squadron at Hill Air Force Base in Utah is an element of the 782nd Training Group, 82nd Training Wing, and provides multimedia instruction and materials for aircraft and munitions maintenance training.

Unlike the other Services, the Navy does not appear to have any organizations designated as training support. One possible explanation is that the training support function occurs at a higher level, namely the Navy’s Training Centers and Commands.

g. Service Personnel Commands

Unlike the other categories, Service Personnel Commands refers to one specific unit within each of the Services—the Army Human Resources Command, the Navy Personnel Command, the Air Force Personnel Center, and the Marine Corps Personnel Management Division. Within each Service, this unit is responsible for the career management and allocation of people within the Service’s workforce. We have included it in our analysis to highlight some of the differences between the departments within the P&SS function group of the IG/CA dataset.

Table 6 displays the aggregate military and civilian authorizations of the sub-functions of interest allocated across these seven organizational categories. (See Appendix B for the full list of military and civilian authorizations by sub-function for each

organizational category and department.) Combined, these sub-functions represent 64,518 Active Duty authorizations and 20,681 civilian authorizations.²⁸

Table 6. FY 2013 Authorizations of Selected E&T and P&SS Sub-functions

Organizational Category	Army		Navy		Air Force		Total	
	Active	Civilian	Active	Civilian	Active	Civilian	Active	Civilian
Recruiting	8998	890	9874	749	2228	27	21100	1666
Military Skills Training	6410	1816	11295	840	4614	1100	22319	3756
Training Centers of Excellence	5033	1916	6119	1262	0	0	11152	3178
Headquarters Support	1748	1598	601	675	438	570	2787	2843
Training Support	1086	515	2178	496	421	207	3685	1218
Human Resources Command	725	1129	863	485	589	348	2177	1962
Installation Support	20	3202	1264	2783	14	73	1298	6058

As noted previously, we do not perform a simple comparison of the military-to-civilian ratios on these subsample groups as other studies have done. To estimate the scope for converting military billets to civilian positions, our more robust approach accounts for differences both in the distribution of military essential billets across departments and in the use of contractors who can also substitute for military in non-IG positions. In the next section, we identify two different groups—using the IG/CA criteria—to use as the basis of our analysis of the potential scope and savings from military-to-civilian conversions.

B. Identifying Opportunities for Military-to-Civilian Conversions

1. Navy Sea Shore Flow Comparison

As mentioned previously, our primary approach for estimating the savings from civilianization—matching the workforce mix of the least military-intensive department—

²⁸ Not every unit listed in the IG/CA dataset fits into one of the organization types, so the total civilian and military authorizations in Table 6 and Appendix B do not match to total authorizations for all of the specified sub-functions in Table 5. The authorizations in Table 6 represent 76 percent of the total of all of the selected sub-functions for the Army, 88 percent for the Navy, 58 percent for the Air Force, and 98 percent for the Marine Corps. Difficulties interpreting the unit names listed in the IG/CA dataset account for the majority of the variation.

provides a rough order of magnitude estimate, but it may obscure the Service-specific manpower constraints, suggesting conversions that are unrealistic.

Perhaps the most robust example of these constraints is policy embedded in the Navy’s Sea Shore Flow (SSF) model. The SSF calculates the minimum number of shore billets needed to sustain the sea force for specific job functions and sea tour lengths based on personnel policy decisions that affect tour length and minimum time between sea tours. One way to use this model to determine if there is additional potential for civilianization is to examine the ratio of sea to shore billet requirements calculated via the SSF for selected ratings. Then, we can compare the ratio to the proportion of Active military shore billets in the IG/CA with criteria code J (Exemption for Civilian and Military Rotation) for rotational requirements.

Table 7 shows the ratio of sea to shore billets for a handful of selected ratings using the manpower data for FY 2014.²⁹

Table 7. SSF Model Billet Ratio for Selected Ratings, FY 2014

Rating	Ratio of Sea to Shore Billets
Aviation Structural Mechanic	2.38
Yeoman	0.83
Electronics Technician, Surface Warfare	1.93
Personnel Specialist	1.56
Operations Specialist	2.31
Engineman	2.31
Aviation Aircrew	2.61
Aviation Maintenance Administration	1.91
Hull Maintenance Technician	2.41
Master-at-Arms	0.38
Navy Counselor	1.12
Machinist’s Mate, Nuclear Power Submarine	2.14
Aviation Boatswain’s Mate – Fuels	3.27
Average Ratio	1.94

From the table, we can see that the average ratio of sea to shore billets is just under 2:1, implying that, for these ratings, the Navy typically requires one shore billet for every two sea billets.

²⁹ The Navy N1 manpower office provided us with a version of the SSF model as well as the user’s manual, with which we derived these results. As such, we take responsibility for any calculation errors that may have occurred.

Next, using the IG/CA criteria codes, we can identify the proportion of Navy billets in the functions of interest that are coded as Active military authorizations to accommodate rotational requirements. The results are summarized in Table 8.

Table 8. FY 2013 IG/CA Military Authorizations with Criteria Code J

IG/CA Generalized Manpower Function	Billets with Criteria Code J	Total Military Authorizations	Proportion due to Rotation
Convenience Services	13	60	21.7%
Curriculum Development	474	2,804	16.9%
Human Resources	410	6,998	5.9%
Medical Training, Education, and Development	0	141	N/A
Morale and Social Support	52	145	35.9%
Specialized Skill Training	2,278	9,173	24.8%
Total	3,227	19,321	16.7%

For these results to compare with the results from the SSF model, which indicated an average sea to shore ratio of 2:1, we would expect an average proportion of military authorizations coded for rotational requirements to be 33 percent. However, each of these general functions, with the exception of Morale and Social Support, falls well below that expectation, indicating that fewer Active military authorizations are coded as career rotation to support shore rotation requirements than one would expect from the SSF model.

These are general results, and a number of important caveats apply to interpreting them. First, we are not comparing identical manpower characteristics. With the SSF model, we are looking at communities of Navy ratings and how the billets are split between sea tours and shore tours over an entire enlisted career. There is nothing in the SSF model that specifies the *type* of shore billets required by the Navy’s policy—only the quantity. With the IG/CA dataset, we are looking at the opposite, namely the *function* of each authorized billet, but not the specific rating needed to fulfill it.

Further, the standard SSF model does not define the career path for every enlisted rating; e.g., Navy medical ratings (as implied in Table 8) are not defined. In addition, some ratings are considered more sea-intensive than others, so we would expect a lower proportion of shore billets for them.

Finally, because the coding decisions for manpower within the IG/CA dataset are based on an order of precedence in DoDI 1100.22 for determining workforce mix, some of the authorizations may likely be labeled with a criteria code other than as a rotation requirement even though the billet is, in fact, required to accommodate the SSF. One can easily imagine a Navy instructor billet for teaching at a maintenance schoolhouse that is used as a professional development tour between sea rotations that a manpower analyst

codes in the IG/CA inventory as criteria code F, corresponding to an exemption from commercial competition due to “Military Unique Knowledge and Skills,” rather than as criteria code J for “Civilian and Military Rotation.” Such judgments at the lowest level mean that these proportions do not necessarily correspond with the official rotation requirements calculated by the SSF model.

However, the discrepancies in the two ways to calculate the policy-driven rotation requirements suggest that there may still be potential to civilianize certain Navy ratings with low sea to shore ratios.

2. Identifying Military Essential Authorizations from the IG/CA Inventory

A careful analysis of the scope for civilianization must take into account, first, that the classification of some military authorizations is ambiguous, and the pressure to cut the civilian workforce creates incentives for employment managers to employ military personnel in these billets even when a civilian may be appropriate and more cost effective to DoD and the government as a whole. Second, a careful analysis needs to consider that even with such incentives, some positions truly *are* military essential and cannot be (or should not be) converted.

Given these two competing considerations, it is unfortunate, then, that the IG/CA dataset criteria do not directly address military essentiality. Enclosures 3 and 4 of DoDI 1100.22 describe the procedures for workforce mix decisions as well as the manpower mix criteria codes. But, as described in Section 3.A, these criteria are designed to distinguish between inherently governmental functions and commercial activities rather than to specify whether a particular function is military essential. For example, criteria code A (Direction and Control of Combat/Crisis Situations) is used primarily for operational combat forces and typically considered military essential. Yet there *are* civilian authorizations in the FY 2013 IG/CA dataset listed with criteria code A. The same is true of other military-heavy criteria codes such as B (Exemption of Combat Support & Combat Service Support due to Operational Risk), D (Exemption of Manpower Dual Tasked for Wartime Assignment), and F (Military Unique Knowledge and Skills). Consequently, there is no way to use the IG/CA dataset to separate military essential authorizations from non-military essential authorizations without looking on a case-by-case basis. For that reason, we recommend that the IG/CA dataset be adapted to include criteria for military essentiality:

- **Recommendation 9:** Adapt manpower systems to ensure the IG/CA report includes the criteria for military essentiality as identified in DoDI 1100.22.

Even so, by looking at the criteria descriptions and how the departments allocate military and civilian authorizations among them, we can gain some insights into which billets may be truly military essential and which may have some scope for civilianization. Recognizing that the intent of the IG/CA inventory is commercial versus non-commercial

performance instead of military versus non-military performance, we take a conservative approach to categorizing military authorizations in the inventory as military essential. For the purposes of this analysis, we assume that all military billets that are classified under esprit de corps, career rotation and progression, and legislative constraints (criteria G, J, K, and L) are military essential.³⁰ We treat these authorizations, summarized in Table 9, as ineligible for conversion to civilian performance. Nearly all Active Duty Army personnel in these sub-functions are considered eligible. The Navy has the most exclusions, with only 59 percent of Active Duty authorizations considered eligible for conversion. This difference is largely driven by the Navy’s sea-shore requirements.

Table 9. Distribution of Active Authorizations in Strict Exclusion Sample

Category of Active Authorization	Army	Navy	Air Force
Excluded Military Authorizations	195	13,965	2,817
Remaining Military Authorizations	27,026	19,697	8,213
% Military Billets Remaining in Sample	92%	59%	74%

Note: Only authorizations from the 11 sub-functions of interest are included.

In Appendix C, we present an alternative analysis for comparison that allows for a more generous assumption of military essentiality. Namely, we assume that the criteria that are nearly exclusively applied to military authorizations are also military essential. These three additional criteria are Direction and Control of Combat & Crisis Situations, Military Unique Knowledge and Skills, and Military Augmentation of the Infrastructure during War (criteria A, F, and I). We do not exclude authorizations under these three criteria from our main analysis in this chapter because IG/CA managers often have enough discretion to assign military billets to these categories, regardless of whether they are *truly* military essential. (Recall that the IG/CA inventory is intended to establish why an authorization is not eligible for *commercial* performance, not why it is not eligible for *government* performance.)

C. Estimating the Costs of Civilian and Military Personnel

Following the guidance of DoDI 7041.04,³¹ we estimate the full cost of military and civilian personnel, including long-run and deferred costs as well as costs that are borne by federal government departments outside of DoD. Table 10 and Table 11 list the cost

³⁰ Since IG/CA managers may have some incentives for categorizing military authorizations in “military essential” billets to protect military end strength in their organizations, a billet-level analysis might likely find that all of the military authorizations coded under these four criteria are actually military essential as described in DoDI 1100.22.

³¹ DoDI 7041.04, *Estimating and Comparing the Full Costs of Civilian and Active Duty Military Manpower and Contract Support*, July 3, 2013.

components we include in our analysis and the sources of these cost components. Appendix D provides additional information about how we calculated each cost component. DoDI 7041.04 calls for the inclusion of the Department of the Treasury’s contributions into the Medicare-Eligible Retiree Health Care Fund (MERHCF) and contributions for military retirement in cost calculations. We do not include these costs of past military Service members in our analysis because we want to estimate the effects of changes to the current workforce mix.

Table 10. Active Duty Personnel Cost Components and Sources

Cost Component	Source
Costs to DoD	
Basic Pay, Incentive and Special Pays, Allowances, Social Security and Medicare, Retired Pay (accrual), Travel/PCS/Transportation subsidy, Health Benefit, retiree (>65 MERHCF accrual), Retiree, Separation Pay and Travel, Unemployment Benefits, Death Gratuities and Survivor Benefits (minus operational travel)	Composite Rate
Health Benefit (Active Duty and Dependents), Training Costs, Recruitment and Advertising, and Education Assistance	DoD Comptroller
Family Support Services	DoDDE Family Assistance/Family Advocacy Programs Budget
Discount Groceries	2014 Full Cost of Manpower Tool (FCoM)
Health benefit, retiree (<65 retiree and family), >65 Plus Up	DoD Actuary
Health Benefit, other (TAMP and CHCBP), Discount Groceries, Retiree	Medical Readiness Review 2006
Additional Costs to Federal Government	
Tax Shortfall Payment (Treasury)	Medical Readiness Review 2006
Concurrent Receipt (Treasury)	DoD Actuary
Child Education (Education)	2014 Full Cost of Manpower Tool (FCoM)
VA Benefits (Veterans’ Affairs)	Congressional Budget Office Report 2015
Employment Training (Labor)	Medical Readiness Review 2006

Note: PCS – Permanent Change of Station; DoDDE - Department of Defense Dependents Education; TAMP - Transitional Assistance Management Program; CHCBP - Continued Health Care Benefit Program.

Table 11. Civilian Personnel Cost Components and Sources

Cost Component	Source
Costs to DoD	
Basic Pay, Locality Pay	CBO Report 2015, data supplemental
Object Class 11 (other) Load Factor: Overtime/Holiday/Other Pays, Incentive/Performance Awards	"Fiscal Year 2014 DoD Civilian Personnel Fringe Benefit Rates" memo, http://www.dod.mil/comptroller/rates/
Object Class 12 load factor: Health Benefit (government share of FEHBP), Social Security and Medicare, Retired Pay (government share), Travel/PCS/transportation subsidy/relocation bonus, Life insurance/worker's compensation benefits	"Fiscal Year 2014 DoD Civilian Personnel Fringe Benefit Rates" memo, http://www.dod.mil/comptroller/rates/
Object Class 13 load factor: Severance Pay/Separation Incentive, Severance Health Benefit	"Fiscal Year 2014 DoD Civilian Personnel Fringe Benefit Rates" memo, http://www.dod.mil/comptroller/rates/
Additional Costs to Federal Government	
Retirement Benefits: Civilian Retirement, Post-Retirement Health Care, Post-Retirement Life Insurance	"Fiscal Year 2014 DoD Civilian Personnel Fringe Benefit Rates" memo, http://www.dod.mil/comptroller/rates/

Note: FEHBP – Federal Employees Health Benefits Program.

We compute an average annual cost of an Active Duty Service member for each of the military departments.³² In the data supplemental to their 2015 report, CBO includes estimates of the basic pay of civilians crosswalked to IG/CA sub-functions, so we were able to estimate annual costs of civilians in our sample at the sub-function level for each military department.

We do not estimate the annual costs of contractors in our sample for two reasons. First, while the ICS does include information on the price of each contract, these prices often include non-labor costs such as equipment and contractor overhead. Consequently, the reported prices of these contracts do not provide a good comparison for the cost of a contractor FTE. Second, since we hold contractor FTEs fixed in our conversion analysis, their costs do not affect our estimated cost savings from converting military billets to civilian billets.

Table 12 reports the average annual cost of the Active Duty Service members and government civilians in our 11 sub-functions of interest for each of the military departments (for all criteria codes). We estimate that the difference in DoD's cost between

³² The average cost of Active Duty Service members is weighted across all ranks according to September 2014 end strength.

Active Duty Service members and civilians ranges from just above \$6,000 for the Navy to \$22,400 for the Air Force. The potential cost savings from substituting civilians for military personnel is much higher once the full costs to the federal government are considered. Here, the average costs of a military person range from 43 to 62 percent more than their civilian counterparts. In fact, given the distribution of subspecialties in our sample, it is likely that these estimated differences in personnel costs are on the conservative side. Several of the civilian positions in our sample are relatively high-paying—the average annual basic pay of civilians in our sample is \$69,565. If the Service members in our sample earn more than the military department averages, the cost differences between the military and civilian personnel will be even greater.³³

Table 12. Average Annual Costs of Active Duty Service Members and Civilians (\$FY14)

	Army	Navy	Air Force
Costs to DoD			
Active Duty	\$112,033	\$107,203	\$119,565
Civilian	\$97,110	\$101,073	\$97,165
Difference	\$14,923	\$6,129	\$22,400
Costs to Federal Government			
Active Duty	\$158,847	\$153,545	\$167,534
Civilian	\$103,415	\$107,649	\$103,247
Difference	\$55,432	\$45,896	\$64,287

Even as substantial as these cost differences are, the true advantage to DoD of converting military billets to civilians likely lies not in the dollar cost savings but in freeing up scarce military billets, which is especially valuable in this era of downsizing when military billets are becoming an increasingly scarce resource. By identifying non-military essential positions that can be performed by civilians, the military Services can reallocate or preserve positions in the more military-critical positions. Hence these conversions may be less about “civilianization” than they are about militarizing the military.

D. Estimating the Benefits of Military-to-Civilian Conversions

As mentioned above, we have identified 11 sub-functions in two major functional areas that potentially have a large scope for civilianization. Since a billet-level analysis is

³³ The relative costs of military and civilian personnel also depend on where they are stationed. We average basic allowance for housing and locality pay across all authorizations into our estimates of the average annual costs of military and civilian personnel. However, the choice of military or civilian performance may be regional, and actual savings from converting military authorizations to civilian authorizations could be higher or lower, depending on the relative values of basic allowance for housing and locality pay where the conversions take place.

beyond the scope of this project, we estimate the savings from civilianization in these particular sub-functions by comparing force mixes across the military departments, and estimate the savings from matching the military department with the lowest percentage of Active Duty personnel in each sub-function. However, as mentioned previously, we include two important methodological improvements in our analysis.

First, it is important to recognize the contribution that contractors make to the force mix. Their role is especially important when considering that the Services often face constraints in military manpower and civilian manpower, forcing them to achieve their mission objectives by hiring additional contractors. As our analysis shows, contractors are more involved in the E&T mission, but they are also present in P&SS. To account for the role of contractors, we calculate the Active Duty percentage relative to the *total force size* in each sub-function where the total force size equals Active Duty personnel plus civilian personnel plus service contractor FTEs. To allocate service contractors across the sub-functions, we distribute E&T contractors in proportion to the Active and civilian authorizations in each E&T sub-function (relative to the number of Active and civilian authorizations in *all* E&T sub-functions, including those not listed in Section 4.A) for each military department. To allocate service contractors across the P&SS sub-functions, we distribute the “Social Services” contractors in the two sub-functions labeled “Other Social Services” and “Social Rehabilitation Services” in proportion to the Active and civilian authorizations in each P&SS sub-function (relative to the number of Active and civilian authorizations in *all* P&SS sub-functions, including those not listed in Section 4.A) for each military department. In addition, we allocate all Recreation Services contractors to the Morale, Welfare, and Recreation Services sub-function for each military department.

The second important methodological change we make is to plausibly exclude some military essential authorizations from the workforce mix analysis. By excluding billets that have a high probability of being military essential, we are better able to accommodate the differing missions and requirements of the various departments (e.g., Navy sea-shore rotation). However, because the IG/CA criteria do not identify military essentiality directly, we cannot assume all of the non-excluded billets are *not* military essential, so we are still reliant on department comparisons to assess the potential scope for civilianization.

To estimate the number of potential conversions for each sub-function, we solved the following system of equations:

$$\frac{m_1 - m_2}{c_2 - c_1} = s \tag{1}$$

and

$$\frac{m_2}{m_2 + c_2 + k} = r, \tag{2}$$

where m_1 and c_1 are the number of military and civilian authorizations before conversion, m_2 and c_2 are the number of military and civilian authorizations after conversion (ignoring military essentiality constraints), k is the number of service contractors, s is the substitution rate between military and civilians, and r is the share of Active Duty Service members in the department with the least-military-intensive workforce mix.

Solving this system of equations for m_2 and c_2 yields the following solution for the new workforce after conversion if all departments match the lowest military-to-non-military ratio for each sub-function:

$$m_2 = \frac{r}{r+s-sr} (m_1 + sc_1 + sk) \quad (3)$$

and

$$c_2 = \frac{(1-r)(m_1+sc_1)-rk}{r+s-sr}. \quad (4)$$

However, since we have excluded some military billets from conversion, the new workforce mix becomes

$$m_{post-conversion} = \max(m_2, m_x), \quad (5)$$

where $m_{post-conversion}$ is the total number of military billets post conversion and m_x represents the total number of military billets excluded from conversion. We can calculate the total number of post-conversion civilian billets according to the substitution rate between military and civilian billets:

$$c_{post-conversion} = \frac{m_1 - m_{post-conversion} + sc_1}{s}. \quad (6)$$

In the next section, we describe the choice of substitution rate s between military and civilian authorizations. In Section 4.D.2, we provide some examples of the conversion analysis using some specific sub-functions. In Section 4.D.3, we assess the workforce mix of each sub-function at the major function level to estimate the potential savings from civilianization. In Section 4.D.4, we assess the workforce mix of each sub-function at the level of the organization types described in Section 4.A.2.

1. The Substitution Rate between Military and Civilian Positions

The choice of substitution rate between military and civilian positions can have a sizable effect on the estimated savings from military-to-civilian conversions. Previous

research³⁴ has identified numerous reasons why fewer civilians may be required to fill a given number of military authorizations:

- The civilian workforce does not have the additional responsibilities such as physical training and protocol duties required of the military workforce.
- The civilian workforce does not require additional force structure for students, transients, prisoners, patients, and holdees³⁵ as the military workforce does.
- Civilians do not need as much on-the-job training.³⁶
- During the conversion process, Services may identify additional efficiencies in work performance or process that enable them to reduce the required workforce.

From FY 2004 to 2010, the Services converted about 48,300 military positions to 27,700 civilian positions and 4,800 contractor positions, representing a substitution rate of about 1:1.5 (or about two civilians or contractors replacing every three military positions).³⁷ Future conversions will likely have smaller substitution ratios as ongoing Service efforts to streamline the workforce limit the amount of efficiencies that are possible. In our analysis, we conservatively assume a substitution rate of 1:1.25; i.e., only four civilians are needed to substitute for every five military billets. This ratio falls halfway between the low-end possibility of a 1:1 substitution rate and the 1:1.5 substitution rate achieved in the past decade.³⁸

2. Two Military-to-Civilian Conversion Examples

Consider first the Training Development and Support for Military Education and Training sub-function, which has initial authorizations as shown in Figure 1. In this sub-function, the Army has the smallest share of Active Duty authorizations at 64 percent.

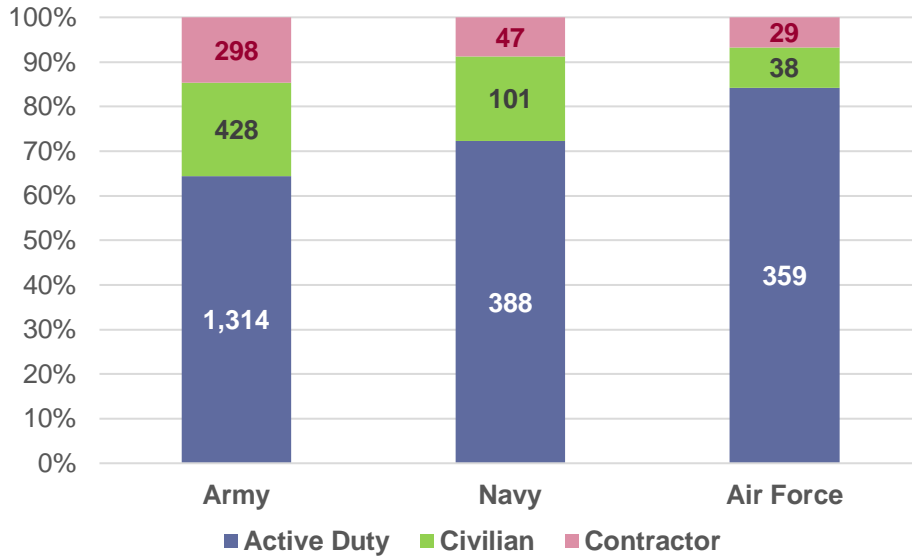
³⁴ See, for example, Whitley et al., “Medical Total Force Management”; CBO, *Replacing Military Personnel*; and OSD, “Operation and Maintenance Overview Fiscal Year (FY) 2010 Budget Estimates,” June 2009.

³⁵ This group is commonly referred to as the “Individuals Account.”

³⁶ CBO, *Replacing Military Personnel*.

³⁷ See OSD, “Operation and Maintenance Overview Fiscal Year (FY) 2010 Budget Estimates.”

³⁸ For comparison purposes, we also briefly report savings estimates using a 1:1 substitution rate and a 1:1.5 substitution rate in the various table notes in Section 4.D.3.



Note: The vertical axis shows the distribution of each department's workforce mix. The data labels report the authorization counts for each personnel type. Active Duty and civilian authorizations are from the FY 2013 IG/CA Inventory. Contractor FTEs are from the FY 2013 ICS.

Figure 1. FY 2013 Authorizations for Training Development and Support for Military Education and Training by Military Department (CONUS Authorizations)

To convert the Navy and Air Force authorizations to match the Army's share, we enter the number of authorizations for each personnel type into equations (3) and (4) using 1.25 as the substitution ratio s and 64 percent as the desired military share r . Since only 21 Navy Active Duty authorizations are coded as "military essential," the solutions to equations (5) and (6) match those of equations (3) and (4). Table 13 shows the new force structure after conversions.

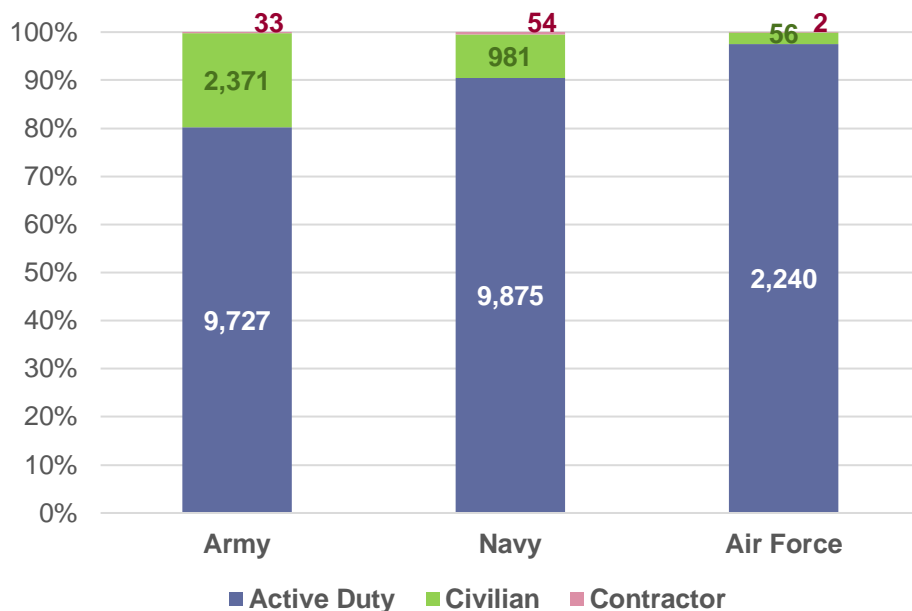
Table 13. Authorizations after Military-to-Civilian Conversion in the Military Education and Training Sub-function

	Army	Navy	Air Force	Total
Initial Authorizations				
Active Authorizations (in sample)	1,314	339	262	1,915
Civilian Authorizations	428	140	116	684
Contractor FTEs	298	47	29	374
Total	2,040	527	407	2,973
% Active	64%	64%	64%	64%
Reduced Military Authorizations	0	49	39	7,521
New Civilian Authorizations	0	97	78	6,017

Notice the effect of including contractor FTEs in this example. In addition to having the lowest share of Active Duty authorizations in this sub-function, the Army also has the

highest share of contractors (15 percent, compared to 9 percent in the Navy and 7 percent in the Air Force). As a result, the Army's estimated Active Duty share of this workforce is 64 percent (compared to 75 percent if contractors were ignored). In this particular sub-function, the inclusion of contractors in the analysis suggests 26 extra military authorizations in the Navy and 27 extra military authorizations in the Air Force may be eligible for conversion.³⁹

Now, to demonstrate the effect of limiting conversions to non-military essential billets (as defined for this analysis in Section 4.B.2), we will show the same conversion exercise for the Military Recruiting and Examining Operations (back office) sub-function. Figure 2 demonstrates the distribution of workforce mix across personnel types for this sub-function. In this example, the Army again has the lowest share of military authorizations (80 percent, compared to 91 percent in the Navy and 97 percent in the Air Force).



Note: The vertical axis shows the distribution of each department's workforce mix. The data labels report the authorization counts for each personnel type. Active Duty and civilian authorizations are from the FY 2013 IG/CA Inventory. Contractor FTEs are from the FY 2013 ICS.

Figure 2. FY 2013 Authorizations for Military Recruiting and Examining Operations (Back Office) by Military Department (CONUS Authorizations)

³⁹ Note that the inclusion of contractors does not always increase the estimated number of conversions. If, instead, the Army had a lower share of contractors than the other military departments while still maintaining the lowest Active Duty share in its workforce mix, the inclusion of contractors in the analysis would *lower* the estimated number of potential military-to-civilian conversions in the Navy and Air Force.

To convert the Navy and Air Force authorizations to match the Army’s share, we enter the number of authorizations for each personnel type into equations (3) and (4) using 1.25 as the substitution ratio s and 80 percent as the desired military share r . Equation (3) yields a solution of 1,342 converted military authorizations required for the Navy to match the Army’s 80 percent Active Duty share in this sub-function. However, there are 8,766 Navy authorizations that are assigned one of the criteria codes that we are treating as military essential in this example, leaving only 1,109 military authorizations eligible for conversion. Table 14 shows the new force structure after conversions. The Navy’s Active Duty share remains slightly higher than that of the other departments because of the 233 authorizations that were not converted due to military essentiality constraints.

Table 14. Authorizations after Military-to-Civilian Conversion in the Military Recruiting and Examining Operations (Back Office) Sub-function

	Army	Navy	Air Force	Total
Initial Authorizations				
Active Authorizations (in sample)	9,727	8,766	1,766	20,259
Civilian Authorizations	2,371	1,868	435	4,674
Contractor FTEs	33	54	2	89
Total	9,727	8,766	1,766	20,259
% Active	80%	82%	80%	81%
Reduced Military Authorizations	0	1,109	474	1,583
New Civilian Authorizations	0	887	379	1,266

In contrast to the previous example, contractor FTEs make up a very small portion of the total workforce in this back office sub-function and do not contribute significantly to the estimated number of eligible military-to-civilian conversions.

3. Scope for Civilianization by Major Function Code

Table 15 presents the estimated cost savings from military-to-civilian conversions in the 11 E&T sub-functions identified in Section 4.A. The Army has the lowest share of Active Duty authorizations in all sub-functions. After matching the Navy and Air Force workforce mixes in each sub-function to the Active Duty share in the Army,⁴⁰ we estimate

⁴⁰ Note that the Active Duty share after conversion is not equal across all departments (in this excursion and in all subsequent ones) for two reasons. First, as demonstrated in the second example in the previous section, the exclusion of some military authorizations from civilian conversion due to military essentiality constraints causes the affected departments to have higher Active Duty shares than they would otherwise. Second, we determine the lowest department Active Duty ratio at the sub-function level, but in Table 15 (and in subsequent tables) we report the aggregate workforce mix after conversion across all 11 sub-functions in the broader E&T function. Differences in the military departments’

around 7,500 military authorizations in the Navy and Air Force could be converted to about 6,000 civilian authorizations, yielding about \$400 million in savings each year to DoD and about \$730 million in savings each year government-wide.

Table 15. Potential Savings from Military-to-Civilian Conversions in Education and Training Sub-functions

	Army	Navy	Air Force	Total
Initial Authorizations				
Active Authorizations (in sample)	12,601	19,408	7,103	39,112
Civilian Authorizations	6,818	2,769	2,438	12,025
Contractor FTEs	3,322	2,146	698	6,166
Total	22,741	24,323	10,239	57,303
% Active	55%	80%	69%	68%
Convert to Lowest Percent Active Duty (by Sub-function Code)				
Reduced Military Authorizations	0	6,323	1,199	7,521
New Civilian Authorizations	0	5,058	959	6,017
Post-Conversion Active Authorizations	12,601	13,085	5,904	31,591
Post-Conversion Civilian Authorizations	6,818	7,827	3,397	18,042
Contractor FTEs	3,322	2,146	698	6,166
Total Post-Conversion Positions	22,741	23,058	10,000	55,799
% Active	55%	57%	59%	57%
Active and Civilian Manpower Annual Costs to DoD (FY 2014, millions)				
Before Conversion	\$1,999.86	\$2,329.25	\$1,020.47	\$5,349.57
After Conversion	\$1,999.86	\$1,996.91	\$949.68	\$4,946.44
Estimated Annual Savings to DoD	\$0.00	\$332.34	\$70.80	\$403.14
Annual Manpower Costs to Federal Government (FY 2014, millions)				
Before Conversion	\$2,627.90	\$3,244.83	\$1,371.87	\$7,244.61
After Conversion	\$2,627.90	\$2,641.91	\$1,248.10	\$6,517.92
Estimated Annual Savings to Government	\$0.00	\$602.93	\$123.77	\$726.69

Note: Applying a 1:1 military-to-civilian conversion rate reduces the total estimated savings to \$264 million for DoD and \$545 million for the federal government. Applying a 1:1.5 military-to-civilian conversion rate increases the total estimated savings to \$517 million for DoD and \$875 million for the federal government.

Table 16 presents the estimated cost savings from military-to-civilian conversions in the 12 P&SS sub-functions identified in Section 4.A. After matching the workforce mixes

allocations of authorizations across these sub-functions produces different overall Active Duty shares, even if these shares are equivalent across military departments at the sub-function level.

to the department with the lowest Active Duty share in each sub-function, we estimate around 6,700 military authorizations could be converted to about 5,300 civilian authorizations, yielding about \$130 million in savings each year to DoD and about \$400 million in savings each year government-wide. Most of these conversions would take place in the Army and the Navy departments.

Table 16. Potential Savings from Military-to-Civilian Conversions in Personnel and Social Services Sub-functions

	Army	Navy	Air Force	Total
IG/CA Inventory				
Active Authorizations (in sample)	14,620	14,254	3,927	32,801
Civilian Authorizations	9,255	5,626	4,245	19,126
Contractor FTEs	66	108	20	194
Total	23,941	19,988	8,192	52,121
% Active	61%	71%	48%	63%
Convert to Lowest Percent Active Duty (by Sub-function Code)				
Reduced Military Authorizations	2,224	3,259	1,168	6,651
New Civilian Authorizations	1,779	2,607	934	5,321
Post-Conversion Active Authorizations	12,396	10,995	2,759	26,150
Post-Conversion Civilian Authorizations	11,034	8,233	5,179	24,447
Contractor FTEs	66	108	20	194
Total Post-Conversion Positions	23,497	19,336	7,958	50,791
% Active	53%	57%	35%	51%
Active and Civilian Manpower Annual Costs to DoD (FY 2014, millions)				
Before Conversion	\$2,610.65	\$2,127.91	\$947.68	\$5,686.25
After Conversion	\$2,570.03	\$2,063.18	\$921.48	\$5,554.69
Estimated Annual Savings to DoD	\$40.61	\$64.74	\$26.21	\$131.56
Annual Manpower Costs to Federal Government (FY 2014, millions)				
Before Conversion	\$3,358.26	\$2,827.52	\$1,166.04	\$7,351.82
After Conversion	\$3,227.09	\$2,630.28	\$1,090.92	\$6,948.30
Estimated Annual Savings to Government	\$131.17	\$197.23	\$75.11	\$403.52

Note: Applying a 1:1 military-to-civilian conversion rate instead increases the total estimated costs by \$19 million for DoD but reduces total estimated costs for the federal government by \$230 million. The increase in cost for DoD is a result of higher costs of civilians relative to military in specific sub-functions (Training Development and Support for Military Education and Training, Military Personnel Operations, Military Recruiting and Examining Operations, Other Personnel Activities, and Personnel Social Action Program Operations). The increased cost to DoD from these conversions is more than offset by the broader savings to the federal government. Applying a 1:1.5 military-to-civilian conversion rate increases the total estimated savings to \$240 million for DoD and \$528 million for the federal government.

In total, across the 21 sub-functions, we estimate about 14,200 military authorizations could be converted to about 11,300 civilian authorizations, yielding about \$530 million in savings each year to DoD and about \$1.1 billion in savings each year government-wide.

There are two primary sources of savings from converting military billets to civilian. The first is the tendency for civilian personnel to cost less than military personnel, all else being equal. This difference alone accounts for \$245 million in savings to DoD each year and \$775 million in savings each year government-wide. The second source of savings is our assumption that fewer civilians are required to replace a given number of military billets. In our analysis, we conservatively assume a substitution rate of 1:1.25; i.e., only four civilians are needed to substitute for every five military billets. This ratio falls halfway between the low-end possibility of a 1:1 substitution rate and the average 1:1.5 substitution rate the Services achieved in military-to-civilian conversions in the past decade. The 1:1.25 substitution rate accounts for 54 percent of our estimated savings to DoD and 31 percent of our estimated savings to the federal government.

In light of significant potential savings from converting non-essential military billets to civilian performance, we add the following recommendation:

- **Recommendation 10:** We recommend the Services civilianize military billets in candidate functional areas—such as, but not limited to, the E&T and P&SS communities—with the goal of balancing capability and capacity while increasing lethality.

4. Scope for Civilianization by Organizational Form

In the analysis described previously in Section 4.D.3, we assume that the workforce mix across all authorizations in a given sub-function can be compared across all three departments. In this section, we relax that assumption by considering how authorizations may be allocated to different organizations that perform similar functions within the departments. In Section 4.A.2 above, we describe seven broader categories comprising units with similar kinds of functions. In this section, we perform the same workforce mix analysis described previously for the authorizations identified in these organizations.

a. Recruiting

Table 17 presents the estimated cost savings from military-to-civilian conversions for the E&T and P&SS authorizations assigned to recruiting organizations. After matching the workforce mixes to the department with the lowest Active Duty share in each sub-function, we estimate around 900 military authorizations could be converted to about 720 civilian authorizations, yielding about \$29 million in savings each year to DoD and about \$67 million in savings each year government-wide.

Table 17. Potential Savings from Military-to-Civilian Conversions in Recruiting Organizations

	Army	Navy	Air Force	Total
IG/CA Inventory				
Active Authorizations (in sample)	8,998	9,874	2,228	21,100
Civilian Authorizations	890	749	27	1,666
Contractor FTEs	71	60	2	132
Total	9,959	10,683	2,257	22,898
% Active	90%	92%	99%	92%
Convert to Lowest Percent Active Duty (by Sub-function Code)				
Reduced Military Authorizations	400	198	301	899
New Civilian Authorizations	320	158	241	719
Post-Conversion Active Authorizations	8,598	9,676	1,927	20,201
Post-Conversion Civilian Authorizations	1,210	907	268	2,385
Contractor FTEs	71	60	2	132
Total Post-Conversion Positions	9,879	10,643	2,197	22,719
% Active	87%	91%	88%	89%
Active and Civilian Manpower Annual Costs to DoD (FY 2014, millions)				
Before Conversion	\$1,109.51	\$1,145.39	\$269.99	\$2,524.89
After Conversion	\$1,090.87	\$1,140.38	\$264.16	\$2,495.41
Estimated Annual Savings to DoD	\$18.65	\$5.01	\$5.83	\$29.48
Annual Manpower Costs to Federal Government (FY 2014, millions)				
Before Conversion	\$1,537.34	\$1,608.63	\$377.09	\$3,523.06
After Conversion	\$1,501.66	\$1,595.51	\$358.72	\$3,455.89
Estimated Annual Savings to Government	\$35.68	\$13.13	\$18.37	\$67.18

b. Military Skills Training

Table 18 presents the estimated cost savings from military-to-civilian conversions for the E&T and P&SS authorizations assigned to military skills training organizations. After matching the workforce mixes to the department with the lowest Active Duty share in each sub-function, we estimate about 5,400 military authorizations could be converted to about 4,300 civilian authorizations, yielding about \$190 million in savings each year to DoD and about \$420 million in savings each year government-wide.

Table 18. Potential Savings from Military-to-Civilian Conversions in Military Skills Training Organizations

	Army	Navy	Air Force	Total
IG/CA Inventory				
Active Authorizations (in sample)	6,410	11,294	4,614	22,318
Civilian Authorizations	890	749	1,099	2,738
Contractor FTEs	1,039	1,097	409	2,545
Total	8,339	13,140	6,122	27,601
% Active	77%	86%	75%	81%
Convert to Lowest Percent Active Duty (by Sub-function Code)				
Reduced Military Authorizations	2,278	3,045	86	5,410
New Civilian Authorizations	1,823	2,436	69	4,328
Post-Conversion Active Authorizations	4,132	8,249	4,528	16,908
Post-Conversion Civilian Authorizations	2,713	3,185	1,168	7,066
Contractor FTEs	1,039	1,097	409	2,545
Total Post-Conversion Positions	7,883	12,531	6,105	26,519
% Active	52%	66%	74%	64%
Active and Civilian Manpower Annual Costs to DoD (FY 2014, millions)				
Before Conversion	\$817.25	\$1,296.94	\$625.98	\$2,740.17
After Conversion	\$752.79	\$1,171.08	\$623.63	\$2,547.49
Estimated Annual Savings to DoD	\$64.46	\$125.87	\$2.35	\$192.67
Annual Manpower Costs to Federal Government (FY 2014, millions)				
Before Conversion	\$1,123.77	\$1,825.95	\$851.94	\$3,801.65
After Conversion	\$965.04	\$1,572.02	\$845.94	\$3,383.00
Estimated Annual Savings to Government	\$158.72	\$253.93	\$6.00	\$418.65

c. Headquarters Support

Table 19 presents the estimated cost savings from military-to-civilian conversions for the E&T and P&SS authorizations assigned to headquarters support organizations. After matching the workforce mixes to the department with the lowest Active Duty share in each sub-function, we estimate 1,200 military authorizations could be converted to 990 civilian authorizations, yielding about \$27 million in savings each year to DoD and about \$78 million in savings each year government-wide.

Table 19. Potential Savings from Military-to-Civilian Conversions in Headquarters Support Organizations

	Army	Navy	Air Force	Total
IG/CA Inventory				
Active Authorizations (in sample)	1,231	542	147	1,920
Civilian Authorizations	1,152	655	341	2,148
Contractor FTEs	52	43	2	97
Total	2,435	1,240	490	4,165
% Active	51%	44%	30%	46%
Convert to Lowest Percent Active Duty (by Sub-function Code)				
Reduced Military Authorizations	887	273	80	1,240
New Civilian Authorizations	710	218	64	992
Post-Conversion Active Authorizations	344	269	67	680
Post-Conversion Civilian Authorizations	1,862	873	405	3,140
Contractor FTEs	52	43	2	97
Total Post-Conversion Positions	2,257	1,186	474	3,917
% Active	15%	23%	14%	17%
Active and Civilian Manpower Annual Costs to DoD (FY 2014, millions)				
Before Conversion	\$246.78	\$114.78	\$55.63	\$417.20
After Conversion	\$231.21	\$105.40	\$53.75	\$390.36
Estimated Annual Savings to DoD	\$15.57	\$9.38	\$1.89	\$26.84
Annual Manpower Costs to Federal Government (FY 2014, millions)				
Before Conversion	\$311.48	\$143.59	\$65.07	\$520.14
After Conversion	\$259.83	\$122.86	\$59.83	\$442.52
Estimated Annual Savings to Government	\$51.65	\$20.73	\$5.24	\$77.62

d. Installation Support

Table 20 presents the estimated cost savings from military-to-civilian conversions the E&T and P&SS authorizations assigned to installation support organizations. After matching the workforce mixes to the department with the lowest Active Duty share in each sub-function, we estimate around 940 military authorizations could be converted to 760 civilian authorizations, yielding about \$26 million in savings each year to DoD and about \$64 million in savings each year government-wide.

Table 20. Potential Savings from Military-to-Civilian Conversions in Installation Support Organizations

	Army	Navy	Air Force	Total
IG/CA Inventory				
Active Authorizations (in sample)	20	1,243	14	1,277
Civilian Authorizations	3,200	2,774	73	6,047
Contractor FTEs	27	43	0	70
Total	3,247	4,060	87	7,394
% Active	1%	31%	16%	17%
Convert to Lowest Percent Active Duty (by Sub-function Code)				
Reduced Military Authorizations	18	913	13	944
New Civilian Authorizations	14	730	10	755
Post-Conversion Active Authorizations	2	330	1	333
Post-Conversion Civilian Authorizations	3,214	3,504	83	6,802
Contractor FTEs	27	43	0	70
Total Post-Conversion Positions	3,243	3,878	85	7,206
% Active	0%	9%	1%	5%
Active and Civilian Manpower Annual Costs to DoD (FY 2014, millions)				
Before Conversion	\$300.35	\$420.61	\$10.22	\$731.18
After Conversion	\$299.91	\$395.66	\$10.05	\$705.62
Estimated Annual Savings to DoD	\$0.45	\$24.94	\$0.17	\$25.56
Annual Manpower Costs to Federal Government (FY 2014, millions)				
Before Conversion	\$320.64	\$496.91	\$11.43	\$828.97
After Conversion	\$319.45	\$434.40	\$10.73	\$764.58
Estimated Annual Savings to Government	\$1.19	\$62.51	\$0.70	\$64.39

e. Training Centers

Table 21 presents the estimated cost savings from military-to-civilian conversions for the E&T and P&SS authorizations assigned to Training Centers in the Army and Navy. After matching the workforce mixes to the department (Army or Navy)⁴¹ with the lowest Active Duty share in each sub-function, we estimate around 1,500 military authorizations could be converted to about 1,200 civilian authorizations, yielding about \$71 million in savings each year to DoD and about \$130 million in savings each year government-wide.

⁴¹ Because Air Force training is not organized in the same way, we only compare Army and Navy workforce mixes in this section.

Table 21. Potential Savings from Military-to-Civilian Conversions in Training Centers Organizations

	Army	Navy	Total
IG/CA Inventory			
Active Authorizations (in sample)	5,033	6,117	11,150
Civilian Authorizations	1,916	1,262	3,178
Contractor FTEs	1,133	688	1,821
Total	8,082	8,067	16,149
% Active	62%	76%	69%
Convert to Lowest Percent Active Duty (by Sub-function Code)			
Reduced Military Authorizations	320	1,151	1,471
New Civilian Authorizations	256	921	1,177
Post-Conversion Active Authorizations	4,713	4,966	9,679
Post-Conversion Civilian Authorizations	2,172	2,183	4,355
Contractor FTEs	1,133	688	1,821
Total Post-Conversion Positions	8,018	7,836	15,854
% Active	59%	63%	61%
Active and Civilian Manpower Annual Costs to DoD (FY 2014, millions)			
Before Conversion	\$750.58	\$785.71	\$1,536.29
After Conversion	\$744.86	\$720.65	\$1,465.51
Estimated Annual Savings to DoD	\$5.72	\$65.05	\$70.78
Annual Manpower Costs to Federal Government (FY 2014, millions)			
Before Conversion	\$998.32	\$1,077.64	\$2,075.96
After Conversion	\$979.58	\$963.02	\$1,942.60
Estimated Annual Savings to Government	\$18.74	\$114.62	\$133.36

f. Training Support

Table 22 presents the estimated cost savings from military-to-civilian conversions for the E&T and P&SS authorizations assigned to training support organizations. After matching the workforce mixes to the department with the lowest Active Duty share in each sub-function, we estimate around 1,200 military authorizations could be converted to 990 civilian authorizations, yielding about \$42 million in savings each year to DoD and about \$94 million in savings each year government-wide.

Table 22. Potential Savings from Military-to-Civilian Conversions in Training Support Organizations

	Army	Navy	Air Force	Total
IG/CA Inventory				
Active Authorizations (in sample)	1,086	2,178	421	3,685
Civilian Authorizations	515	495	207	1,217
Contractor FTEs	172	106	40	319
Total	1,773	2,779	668	5,221
% Active	61%	78%	63%	71%
Convert to Lowest Percent Active Duty (by Sub-function Code)				
Reduced Military Authorizations	528	666	49	1,242
New Civilian Authorizations	422	533	39	994
Post-Conversion Active Authorizations	558	1,512	372	2,443
Post-Conversion Civilian Authorizations	937	1,028	246	2,211
Contractor FTEs	172	106	40	319
Total Post-Conversion Positions	1,668	2,646	658	4,972
% Active	33%	57%	56%	49%
Active and Civilian Manpower Annual Costs to DoD (FY 2014, millions)				
Before Conversion	\$178.57	\$274.49	\$65.55	\$518.60
After Conversion	\$167.22	\$244.73	\$64.88	\$476.83
Estimated Annual Savings to DoD	\$11.34	\$29.76	\$0.67	\$41.77
Annual Manpower Costs to Federal Government (FY 2014, millions)				
Before Conversion	\$233.10	\$378.09	\$86.69	\$697.89
After Conversion	\$200.17	\$320.19	\$83.99	\$604.35
Estimated Annual Savings to Government	\$32.94	\$57.90	\$2.70	\$93.54

Table 23 presents the estimated cost savings from military-to-civilian conversions for the E&T and P&SS authorizations assigned to Service personnel command organizations. After matching the workforce mixes to the department with the lowest Active Duty share in each sub-function, we estimate around 790 military authorizations could be converted to about 630 civilian authorizations, yielding about \$13 million in savings each year to DoD and about \$45 million in savings each year government-wide.

Table 23. Potential Savings from Military-to-Civilian Conversions in Service Personnel Command Organizations

	Army	Navy	Air Force	Total
IG/CA Inventory				
Active Authorizations (in sample)	54	793	585	1,432
Civilian Authorizations	127	442	340	909
Contractor FTE	3	7	5	14
Total	184	1,242	930	2,355
% Active	29%	64%	63%	61%
Convert to Lowest Percent Active Duty (by Sub-function Code)				
Reduced Military Authorizations	2	329	458	789
New Civilian Authorizations	2	263	366	631
Post-Conversion Active Authorizations	52	464	127	643
Post-Conversion Civilian Authorizations	129	705	706	1,540
Contractor FTEs	3	7	5	14
Total Post-Conversion Positions	183	1,176	838	2,198
3% Active	28%	39%	15%	29%
Active and Civilian Manpower Annual Costs to DoD (FY 2014, millions)				
Before Conversion	\$19.58	\$136.30	\$108.73	\$264.61
After Conversion	\$19.44	\$131.61	\$100.76	\$251.81
Estimated Annual Savings to DoD	\$0.14	\$4.69	\$7.97	\$12.80
Annual Manpower Costs to Federal Government (FY 2014, millions)				
Before Conversion	\$22.99	\$176.39	\$139.22	\$338.60
After Conversion	\$22.76	\$158.45	\$112.23	\$293.43
Estimated Annual Savings to Government	\$0.23	\$17.95	\$26.99	\$45.17

In total, across the seven organization types, we estimate 12,000 military authorizations could be converted to 9,600 civilian authorizations, yielding about \$400 million in savings each year to DoD and about \$900 million in savings each year government-wide.

5. Conclusion

In his 2006 report on the evolution of the All-Volunteer Force, former Under Secretary of Defense (Personnel and Readiness) Bernard Rostker wrote that “a central feature of...all substitution studies, whether the civilianization study of 1972 or the more recent outsourcing studies of the 1990s, is the lack of any consistent application of a reasonable methodology.”⁴² Now, 12 years later, this review has identified six primary issues confronting civilianization during the last five decades:

- The lack of a consistent methodology to determine military essentiality for specific positions and functions across the Services;
- The lack of a unified, holistic approach to determine DoD military and civilian personnel requirements and, importantly, budget allocations;
- The critical role of congressional legislation, from capping civilian authorizations to prohibiting conversions in certain career fields, in the outcomes of conversion efforts;
- Military Service concerns, rooted in historical precedent, about losing converted positions due to decreased civilian personnel ceilings caused by pressure to reduce overhead and Pentagon civilian staff;
- Manpower gaps that emerge while executing conversions, where military billets have been civilianized but civilian replacements have not yet filled the converted positions; and
- Other human resource and management factors beyond cost—including mobilization potential, unit morale, and career progression—that affect the decision to employ military versus civilian manpower to perform a specific function.

Future attempts to find potential savings from civilianization should be mindful of these challenges and address the factors that have stifled such programs in the past. It is also important to remember that, in spite of these obstacles and challenges, DoD *has* successfully substituted civilians for military personnel in support positions, saving the government money and shifting military personnel back into combat units to support

⁴² Bernard Rostker, *I Want You! The Evolution of the All-Volunteer Force*, Report MG-265 (Santa Monica, CA: The RAND Corporation, 2006), 200, <http://www.rand.org/pubs/monographs/MG265.html>.

deployments and rotations overseas. The extent of these successes, though, is not indicative that such efforts have reached a limit to their potential benefits.

One potential limitation of civilianization analyses is the inconsistent methods for coding manpower authorizations in the IG/CA dataset. Fundamentally, the IG/CA dataset is designed to distinguish between inherently governmental functions and commercial activities, not whether a function should be performed by military or civilian personnel. In documenting the current manpower mix across the criteria codes, we found civilian authorizations categorized with criteria codes originally thought to be military only. Currently, then, there is no way to use the IG/CA dataset to separate military essential authorizations from non-military essential authorizations without looking on a case-by-case basis. For that reason, we recommend that the IG/CA dataset be adapted to include criteria for military essentiality as identified in DoDI 1100.22.

We also found that similar functions (e.g., Specialized Skill Training or Military Personnel Operations) are coded differently across the Services. In some ways, this is not surprising—decentralized execution of the data call, combined with the volume of data collected, means that individual manpower analysts may interpret the workforce mix guidance differently and interpret code authorizations in a manner that, while consistent with the policy, ends up inconsistent across the entire dataset. This suggests that future revisions of DoDI 1100.22 should attempt to standardize the reporting and coding criteria for manpower analysts across the Services and at the lowest organizational level possible.

In this paper, we have identified two functional areas—E&T and P&SS—where there still appear to be significant savings possible from identifying non-military essential billets that could be more efficiently performed by civilian employees. In these two functions alone, we estimate that DoD could free up around 14,200 military positions that could be used in more combat-oriented positions or they could reduce military end strength, generating about \$530 million in savings each year to DoD over the long run and about \$1.1 billion in savings each year government-wide. These savings could be returned to taxpayers in the form of budget reductions or they could be allocated to other national security concerns, such as force modernization.

Appendix A.

List of Recommendations

Recommendation 1: Avoid implementing arbitrary cuts in the civilian workforce. DoD cannot prevent Congress from imposing personnel caps and conversion bans, but it can make clear that such actions are serious impediments to rational workforce management.

Recommendation 2: Tie end-strength increases to operational force structure requirements and accepted military essentiality arguments, while recognizing the intrinsic role of civilians as a part of operation capabilities.

Recommendation 3: Develop a more aligned and enterprise-wide taxonomy for documenting mission, task, functions, and workload requirements without regard to the eventual labor source.

Recommendation 4: Establish a governance process within the construct of DoD's PPBE process and readiness reporting that facilitates a more consistent application of military essentiality, ensuring that demands for military manpower are coordinated and the military incumbency is warranted, informed by mission, task, function analysis, and/or a business case.

Recommendation 5: Ensure funding for civilian positions resulting from military-to-civilian conversions for a determined period of time.

Recommendation 6: Ensure there are no gaps in funding during military-to-civilian conversions.

Recommendation 7: Consider integrating the funding of military and civilian personnel to improve visibility into the costs of alternative personnel types. Pilot programs could test ways of implementing decentralized military manpower budgeting.

Recommendation 8: Standardize the reporting and coding criteria in future revisions of DoDI 1100.22 for manpower analysts across the Services and at the lowest organizational level possible.

Recommendation 9: Adapt manpower systems to ensure the IG/CA report includes the criteria for military essentiality as identified in DoDI 1100.22.

Recommendation 10: We recommend the Services civilianize military billets in candidate functional areas—such as, but not limited to, the E&T and P&SS communities—with the goal of balancing capability and capacity while increasing lethality.

Appendix B.

Department Organization Types by E&T and P&SS Sub-functions

Table B-1. Department of the Army Organization Type by Function

Army Organization Type by Function	Active Military	Civilian	Total
Recruiting	8,998	890	9,888
Family Center Services	1	45	46
Military Institutional Education and Training Management	1	1	2
Military Personnel Operations	79	231	310
Military Recruiting and Examining Operations	8,655	610	9,265
Personnel Social Action Program Operations	6		6
Specialized Skill Training	254		254
Training Development and Support for Military Education & Training	2	3	5
Military Skills Training	6,410	1,816	8,226
Family Center Services		7	7
Military Institutional Education and Training Management	620	206	826
Military Personnel Operations	401	251	652
Military Recruiting and Examining Operations	177	6	183
Personnel Social Action Program Operations	12		12
Postal Services		12	12
Specialized Skill Training	3,974	733	4,707
Training Development and Support for Military Education & Training	1,226	601	1,827
Training Centers of Excellence	5,033	1,916	6,949
Family Center Services		7	7
Military Institutional Education and Training Management	506	168	674
Military Personnel Operations	222	54	276
Personnel Social Action Program Operations	40	2	42
Postal Services	1	5	6
Specialized Skill Training	2,965	639	3,604
Training Development and Support for Military Education & Training	1,299	1,041	2,340
Headquarters Support	1,231	1,152	2,383
Family Center Services	6	48	54

Army Organization Type by Function	Active Military	Civilian	Total
Management Headquarters - Community and Family Services	8	10	18
Military Institutional Education and Training Management	5	13	18
Military Personnel Operations	922	267	1,189
Military Recruiting and Examining Operations	22		22
Morale, Welfare, and Recreation (MWR) Services	6	26	32
Other Personnel Activities	5	24	29
Other Social Services	6	515	521
Personnel Social Action Program Operations	196	35	231
Postal Services	2	17	19
Specialized Skill Training	37	96	133
Training Development and Support for Military Education & Training	16	101	117
Training Support	1,086	515	1,601
Family Center Services		1	1
Military Institutional Education and Training Management	41	9	50
Military Personnel Operations	315	89	404
Military Recruiting and Examining Operations	179	3	182
Morale, Welfare, and Recreation (MWR) Services		3	3
Personnel Social Action Program Operations	11		11
Postal Services		3	3
Specialized Skill Training	266	62	328
Training Development and Support for Military Education & Training	274	345	619
Human Resources Command	54	127	181
Military Personnel Operations	52	94	146
Other Personnel Activities		1	1
Postal Services	2	19	21
Training Development and Support for Military Education & Training		13	13
Installation Support	20	3,200	3,220
Family Center Services		1,278	1,278
Management Headquarters - Community and Family Services		4	4
Medical Training, Education, and Development	1		1
Military Personnel Operations	10	1,138	1,148
Morale, Welfare, and Recreation (MWR) Services	2	537	539
Other Personnel Activities		11	11
Other Social Services		20	20

Army Organization Type by Function	Active Military	Civilian	Total
Personnel Social Action Program Operations	2	97	99
Postal Services		25	25
Specialized Skill Training	1	12	13
Training Development and Support for Military Education & Training	4	78	82
Army Grand Total	22,832	9,616	32,448

Table B-2. Department of the Navy Organization Type by Function

Navy Organization Types by Function	Active Military	Civilian	Total
Navy Recruiting	5,052	468	5,520
Military Institutional Education and Training Management	3		3
Military Personnel Operations	1	32	33
Military Recruiting and Examining Operations	5,013	433	5,446
Other Personnel Activities	3	1	4
Specialized Skill Training	5		5
Training Development and Support for Military Education & Training	27	2	29
USMC Recruiting	4,822	281	5,103
Military Personnel Operations	120		120
Military Recruiting and Examining Operations	4,649	280	4,929
Morale, Welfare, and Recreation (MWR) Services	2		2
Other Social Services	5		5
Postal Services	10		10
Specialized Skill Training	36	1	37
Navy Military Skills Training	4,961	305	5,266
Military Institutional Education and Training Management	56	5	61
Military Personnel Operations	27	10	37
Military Recruiting and Examining Operations	1		1
Other Personnel Activities	2		2
Specialized Skill Training	3,388	102	3,490
Training Development and Support for Military Education & Training	1,487	188	1,675
USMC Military Skills Training	6,333	535	6,868
Military Institutional Education and Training Management	1		1
Specialized Skill Training	6,332	535	6,867
Navy Training Centers and Commands	6,117	1,262	7,379
Medical Training, Education, and Development	3		3
Military Exchange Operations	10		10
Military Institutional Education and Training Management	132	19	151
Military Personnel Operations	66	148	214
Military Recruiting and Examining Operations	5	7	12
Morale, Welfare, and Recreation (MWR) Services	1		1
Other Personnel Activities	11	19	30
Personnel Social Action Program Operations	3		3
Postal Services	17		17
Specialized Skill Training	5,256	338	5,594

Navy Organization Types by Function	Active Military	Civilian	Total
Training Development and Support for Military Education & Training	613	731	1,344
Navy Headquarters Support	321	93	414
Family Center Services		10	10
Management Headquarters - Community and Family Services	1		1
Management Headquarters - Military Personnel	59	15	74
Military Institutional Education and Training Management	2	4	6
Military Personnel Operations	58	4	62
Military Recruiting and Examining Operations	7		7
Morale, Welfare, and Recreation (MWR) Services		7	7
Personnel Social Action Program Operations	1	13	14
Postal Services	1		1
Specialized Skill Training	183	40	223
Training Development and Support for Military Education & Training	9		9
USMC Headquarters Support	280	577	857
Family Center Services		116	116
Management Headquarters - Community and Family Services		34	34
Military Exchange Operations		5	5
Military Personnel Operations	162	151	313
Military Recruiting and Examining Operations		3	3
Morale, Welfare, and Recreation (MWR) Services	15	110	125
Other Social Services	54	35	89
Postal Services	17		17
Specialized Skill Training	32	122	154
Training Development and Support for Military Education & Training		1	1
USMC Training Support	2,178	495	2,673
Family Center Services	3	138	141
Management Headquarters - Community and Family Services		5	5
Military Exchange Operations	27	1	28
Military Institutional Education and Training Management	44	28	72
Military Personnel Operations	1,107	88	1,195
Military Recruiting and Examining Operations		5	5
Morale, Welfare, and Recreation (MWR) Services	33	77	110
Personnel Social Action Program Operations		5	5
Postal Services	181	1	182

Navy Organization Types by Function	Active Military	Civilian	Total
Specialized Skill Training	783	136	919
Training Development and Support for Military Education & Training		11	11
Navy Personnel Command	561	442	1,003
Management Headquarters - Community and Family Services	9	9	18
Military Personnel Operations	538	428	966
Military Recruiting and Examining Operations	1	1	2
Other Personnel Activities		1	1
Other Social Services		1	1
Personnel Social Action Program Operations	3	2	5
Training Development and Support for Military Education & Training	10		10
USMC Personnel Management Division	232		232
Military Personnel Operations	232		232
Navy Installation Support	374	2,751	3,125
Family Center Services	3	474	477
Management Headquarters - Community and Family Services	4	63	67
Medical Training, Education, and Development	16		16
Military Institutional Education and Training Management		30	30
Military Personnel Operations	268	1,709	1,977
Morale, Welfare, and Recreation (MWR) Services	62	419	481
Other Personnel Activities		2	2
Other Social Services		2	2
Personnel Social Action Program Operations	16	50	66
Specialized Skill Training	5	1	6
Training Development and Support for Military Education & Training		1	1
USMC Installation Support	869	23	892
Family Center Services	9	5	14
Military Exchange Operations	44		44
Military Personnel Operations	591	8	599
Morale, Welfare, and Recreation (MWR) Services	17	10	27
Postal Services	62		62
Specialized Skill Training	145		145
Training Development and Support for Military Education & Training	1		1
Navy Grand Total	32,100	7,232	39,332

Table B-3. Department of the Air Force Organization Type by Function

Air Force Organization Types by Function	Active Military	Civilian	Total
Recruiting	2,228	27	2,255
Military Recruiting and Examining Operations	2116		2116
Other Personnel Activities	112	27	139
Military Skills Training	4614	1,099	5,713
Family Center Services	1	2	3
Medical Training, Education, and Development	1		1
Military Institutional Education and Training Management	70	10	80
Military Personnel Operations	48	6	54
Military Recruiting and Examining Operations	14		14
Other Personnel Activities	15	19	34
Other Social Services	2	8	10
Personnel Social Action Program Operations		6	6
Postal Services	1		1
Specialized Skill Training	4462	1031	5493
Training Development and Support for Military Education & Training		17	17
Headquarters Support	147	341	488
Family Center Services		16	16
Management Headquarters - Community and Family Services	71	34	105
Medical Training, Education, and Development	2		2
Military Institutional Education and Training Management	1		1
Military Personnel Operations	52	159	211
Military Recruiting and Examining Operations		1	1
Morale, Welfare, and Recreation (MWR) Services		2	2
Other Personnel Activities	11	20	31
Other Social Services		59	59
Personnel Social Action Program Operations	2	33	35
Postal Services	1		1
Specialized Skill Training	5	17	22
Training Development and Support for Military Education & Training	2		2
Training Support	421	207	628
Military Personnel Operations	12		12
Morale, Welfare, and Recreation (MWR) Services		1	1
Other Personnel Activities	46	22	68
Specialized Skill Training	363	178	541
Training Development and Support for Military Education & Training		6	6

Air Force Organization Types by Function	Active Military	Civilian	Total
Air Force Personnel Center	585	340	925
Family Center Services		1	1
Military Personnel Operations	222	79	301
Military Recruiting and Examining Operations	1		1
Morale, Welfare, and Recreation (MWR) Services	47	119	166
Other Personnel Activities	308	141	449
Other Social Services	3		3
Personnel Social Action Program Operations	4		4
Installation Support	14	73	87
Family Center Services		4	4
Military Personnel Operations		3	3
Morale, Welfare, and Recreation (MWR) Services		1	1
Other Personnel Activities		1	1
Other Social Services		19	19
Personnel Social Action Program Operations	14	45	59
Air Force Grand Total	8,009	2,087	10,096

Appendix C.

Estimated Savings from Alternate Exclusion Criteria

As Table C-1 shows, when three additional criteria (Direction and Control of Combat & Crisis Situations; Military Unique Knowledge and Skills; and Military Augmentation of the Infrastructure During War—criteria A, F, and I) are excluded from military-to-civilian conversion, the share of military authorizations remaining eligible for conversion is significantly reduced, from only 3 percent of the Active Duty Air Force considered eligible to 22 percent of the Active Duty Navy.¹

Table C-1. Distribution of Active Authorizations in Generous Exclusion Sample

	Army	Navy	Air Force
Excluded Military Authorizations	21,027	26,393	10,737
Remaining Military Authorizations	6,194	7,269	293
% Military Billets Remaining in Sample	21%	22%	3%

Note: Only authorizations from the eleven sub-functions of interest are included.

Scope for Civilianization by Major Function Code Using Alternate Exclusion Criteria

Table C-2 and Table C-3 present the estimated cost savings from civilian conversions when additional military authorizations are excluded from conversion eligibility. In total, across the 21 sub-functions, we estimate around 9,700 military authorizations could be converted to 7,700 civilian authorizations, yielding about \$360 million in savings each year to DoD and about \$770 million in savings each year government-wide.

From an organizational perspective, we estimate 8,800 military authorizations could be converted to 7,000 civilian authorizations across the seven organization types, yielding about \$370 million in savings each year to DoD and about \$740 million in savings each year government-wide.

¹ In contrast, when we look at the effect of these exclusions on the sample of *all* functional areas, the number of remaining military authorizations eligible for conversion ranges from less than one tenth of the Active Duty Army to slightly more than half of the Active Duty Air Force.

Table C-2. Potential Savings from Military-to-Civilian Conversions in Education and Training Sub-functions

	<u>Army</u>	<u>Navy</u>	<u>Air Force</u>	<u>Total</u>
Initial Authorizations				
Active Authorizations (in sample)	12,601	19,408	7,103	39,112
Civilian Authorizations	6,818	2,769	2,438	12,025
Contractor FTEs	3,322	2,146	698	6,166
Total	22,741	24,323	10,239	57,303
% Active	55%	80%	69%	68%
Convert to Lowest Percent Active Duty (by Sub-function Code)				
Reduced Military Authorizations	0	4,972	238	5,210
New Civilian Authorizations	0	3,978	190	4,168
Post-Conversion Active Authorizations	12,601	14,436	6,865	33,902
Post-Conversion Civilian Authorizations	6,818	6,747	2,628	16,193
Contractor FTEs	3,322	2,146	698	6,166
Total Post-Conversion Positions	22,741	23,328	10,192	56,261
% Active	55%	62%	67%	60%
Active and Civilian Manpower Annual Costs to DoD (FY 2014, millions)				
Before Conversion	\$1,999.86	\$2,329.25	\$1,020.47	\$5,349.57
After Conversion	\$1,999.86	\$2,068.08	\$1,008.49	\$5,076.42
Estimated Annual Savings to DoD	\$0.00	\$261.16	\$11.99	\$273.15
Annual Manpower Costs to Federal Government (FY 2014, millions)				
Before Conversion	\$2,627.90	\$3,244.83	\$1,371.87	\$7,244.61
After Conversion	\$2,627.90	\$2,770.90	\$1,349.50	\$6,748.30
Estimated Annual Savings to Government	\$0.00	\$473.93	\$22.37	\$496.30

Table C-3. Potential Savings from Military-to-Civilian Conversions in Personnel and Social Services Sub-functions

	Army	Navy	Air Force	Total
IG/CA Inventory				
Active Authorizations (in sample)	14,620	14,254	3,927	32,801
Civilian Authorizations	9,255	5,626	4,245	19,126
Contractor FTEs	66	108	20	194
Total	23,941	19,988	8,192	52,121
% Active	61%	71%	48%	63%
Convert to Lowest Percent Active Duty (by Sub-function Code)				
Reduced Military Authorizations	2,186	2,264	7	4,457
New Civilian Authorizations	1,749	1,811	6	3,565
Post-Conversion Active Authorizations	12,434	11,990	3,920	28,344
Post-Conversion Civilian Authorizations	11,004	7,437	4,251	22,691
Contractor FTEs	66	108	20	194
Total Post-Conversion Positions	23,504	19,535	8,191	51,230
% Active	53%	61%	48%	55%
Active and Civilian Manpower Annual Costs to DoD (FY 2014, millions)				
Before Conversion	\$2,610.65	\$2,127.91	\$947.68	\$5,686.25
After Conversion	\$2,570.41	\$2,078.80	\$947.53	\$5,596.74
Estimated Annual Savings to DoD	\$40.23	\$49.12	\$0.16	\$89.51
Annual Manpower Costs to Federal Government (FY 2014, millions)				
Before Conversion	\$3,358.26	\$2,827.52	\$1,166.04	\$7,351.82
After Conversion	\$3,229.01	\$2,686.08	\$1,165.59	\$7,080.67
Estimated Annual Savings to Government	\$129.25	\$141.44	\$0.45	\$271.14

Scope for Civilianization by Organizational Form Using Alternate Exclusion Criteria

In total, across the seven organization types, we estimate 7,188 military authorizations could be converted to 5,750 civilian authorizations, yielding about \$293 million in savings each year to DoD and about \$595 million in savings each year government-wide, shown in Table C-4 through Table C-10.

Table C-4. Potential Savings from Military-to-Civilian Conversions in Recruiting Organizations

	<u>Army</u>	<u>Navy</u>	<u>Air Force</u>	<u>Total</u>
IG/CA Inventory				
Active Authorizations (in sample)	8,998	9,874	2,228	21,100
Civilian Authorizations	890	749	27	1,666
Contractor FTEs	71	60	2	132
Total	9,959	10,683	2,257	22,898
% Active	90%	92%	99%	92%
Convert to Lowest Percent Active Duty (by Sub-function Code)				
Reduced Military Authorizations	316	91	0	407
New Civilian Authorizations	253	73	0	326
Post-Conversion Active Authorizations	8,682	9,783	2,228	20,693
Post-Conversion Civilian Authorizations	1,143	822	27	1,992
Contractor FTEs	71	60	2	132
Total Post-Conversion Positions	9,895	10,665	2,257	22,817
% Active	88%	92%	99%	91%
Active and Civilian Manpower Annual Costs to DoD (FY 2014, millions)				
Before Conversion	\$1,109.51	\$1,145.39	\$269.99	\$2,524.89
After Conversion	\$1,094.37	\$1,143.30	\$269.99	\$2,507.66
Estimated Annual Savings to DoD	\$15.14	\$2.09	\$0.00	\$17.23
Annual Manpower Costs to Federal Government (FY 2014, millions)				
Before Conversion	\$1,537.34	\$1,608.63	\$377.09	\$3,523.06
After Conversion	\$1,508.71	\$1,602.82	\$377.09	\$3,488.62
Estimated Annual Savings to Government	\$28.62	\$5.81	\$0.00	\$34.44

Table C-5. Potential Savings from Military-to-Civilian Conversions in Military Skills Training Organizations

	<u>Army</u>	<u>Navy</u>	<u>Air Force</u>	<u>Total</u>
IG/CA Inventory				
Active Authorizations (in sample)	6,410	11,294	4,614	22,318
Civilian Authorizations	890	749	1,099	2,738
Contractor FTEs	1,039	1,097	409	2,545
Total	8,339	13,140	6,122	27,601
% Active	77%	86%	75%	81%
Convert to Lowest Percent Active Duty (by Sub-function Code)				
Reduced Military Authorizations	776	2,130	6	2,912
New Civilian Authorizations	621	1,704	5	2,329
Post-Conversion Active Authorizations	5,634	9,164	4,608	19,406
Post-Conversion Civilian Authorizations	1,511	2,453	1,104	5,067
Contractor FTEs	1,039	1,097	409	2,545
Total Post-Conversion Positions	8,184	12,714	6,121	27,018
% Active	69%	72%	75%	72%
Active and Civilian Manpower Annual Costs to DoD (FY 2014, millions)				
Before Conversion	\$817.25	\$1,296.94	\$625.98	\$2,740.17
After Conversion	\$792.10	\$1,182.19	\$625.84	\$2,600.13
Estimated Annual Savings to DoD	\$25.14	\$114.75	\$0.14	\$140.03
Annual Manpower Costs to Federal Government (FY 2014, millions)				
Before Conversion	\$1,123.77	\$1,825.95	\$851.94	\$3,801.65
After Conversion	\$1,066.31	\$1,619.88	\$851.54	\$3,537.72
Estimated Annual Savings to Government	\$57.46	\$206.07	\$0.39	\$263.93

Table C-6. Potential Savings from Military-to-Civilian Conversions in Headquarters Support Organizations

	Army	Navy	Air Force	Total
IG/CA Inventory				
Active Authorizations (in sample)	1,231	542	147	1,920
Civilian Authorizations	1,152	655	341	2,148
Contractor FTEs	52	43	2	97
Total	2,435	1,240	490	4,165
% Active	51%	44%	30%	46%
Convert to Lowest Percent Active Duty (by Sub-function Code)				
Reduced Military Authorizations	841	136	3	980
New Civilian Authorizations	673	109	2	784
Post-Conversion Active Authorizations	390	406	144	940
Post-Conversion Civilian Authorizations	1,825	764	343	2,932
Contractor FTEs	52	43	2	97
Total Post-Conversion Positions	2,266	1,213	490	3,969
% Active	17%	33%	29%	24%
Active and Civilian Manpower Annual Costs to DoD (FY 2014, millions)				
Before Conversion	\$246.78	\$114.78	\$55.63	\$417.20
After Conversion	\$232.08	\$111.17	\$55.48	\$398.74
Estimated Annual Savings to DoD	\$14.70	\$3.61	\$0.15	\$18.46
Annual Manpower Costs to Federal Government (FY 2014, millions)				
Before Conversion	\$311.48	\$143.59	\$65.07	\$520.14
After Conversion	\$262.57	\$134.39	\$64.79	\$461.75
Estimated Annual Savings to Government	\$48.90	\$9.20	\$0.28	\$58.38

Table C-7. Potential Savings from Military-to-Civilian Conversions in Installation Support Organizations

	Army	Navy	Air Force	Total
IG/CA Inventory				
Active Authorizations (in sample)	20	1,243	14	1,277
Civilian Authorizations	3,200	2,774	73	6,047
Contractor FTEs	27	43	0	70
Total	3,247	4,060	87	7,394
% Active	1%	31%	16%	17%
Convert to Lowest Percent Active Duty (by Sub-function Code)				
Reduced Military Authorizations	16	633	4	653
New Civilian Authorizations	13	506	3	522
Post-Conversion Active Authorizations	4	610	10	624
Post-Conversion Civilian Authorizations	3,213	3,280	76	6,569
Contractor FTEs	27	43	0	70
Total Post-Conversion Positions	3,244	3,934	86	7,264
% Active	0%	16%	12%	9%
Active and Civilian Manpower Annual Costs to DoD (FY 2014, millions)				
Before Conversion	\$300.35	\$420.61	\$10.22	\$731.18
After Conversion	\$299.94	\$404.31	\$10.17	\$714.42
Estimated Annual Savings to DoD	\$0.41	\$16.30	\$0.05	\$16.76
Annual Manpower Costs to Federal Government (FY 2014, millions)				
Before Conversion	\$320.64	\$496.91	\$11.43	\$828.97
After Conversion	\$319.57	\$454.63	\$11.21	\$785.41
Estimated Annual Savings to Government	\$1.07	\$42.28	\$0.22	\$43.57

Table C-8. Potential Savings from Military-to-Civilian Conversions in Training Centers Organizations

	Army	Navy	Total
IG/CA Inventory			
Active Authorizations (in sample)	5,033	6,117	11,150
Civilian Authorizations	1,916	1,262	3,178
Contractor FTEs	1,133	688	1,821
Total	8,082	8,067	16,149
% Active	62%	76%	69%
Convert to Lowest Percent Active Duty (by Sub-function Code)			
Reduced Military Authorizations	294	1,125	1,419
New Civilian Authorizations	235	900	1,135
Post-Conversion Active Authorizations	4,739	4,992	9,731
Post-Conversion Civilian Authorizations	2,151	2,162	4,313
Contractor FTEs	1,133	688	1,821
Total Post-Conversion Positions	8,023	7,842	15,865
% Active	59%	64%	61%
Active and Civilian Manpower Annual Costs to DoD (FY 2014, millions)			
Before Conversion	\$750.58	\$785.71	\$1,536.29
After Conversion	\$745.36	\$721.38	\$1,466.74
Estimated Annual Savings to DoD	\$5.23	\$64.32	\$69.55
Annual Manpower Costs to Federal Government (FY 2014, millions)			
Before Conversion	\$998.32	\$1,077.64	\$2,075.96
After Conversion	\$981.14	\$964.84	\$1,945.98
Estimated Annual Savings to Government	\$17.18	\$112.80	\$129.98

Note: Because Air Force training is not organized in the same way, we only compare Army and Navy workforce mixes in this table.

Table C-9. Potential Savings from Military-to-Civilian Conversions in Training Support Organizations

	Army	Navy	Air Force	Total
IG/CA Inventory				
Active Authorizations (in sample)	1,086	2,178	421	3,685
Civilian Authorizations	515	495	207	1,217
Contractor FTEs	172	106	40	319
Total	1,773	2,779	668	5,221
% Active	61%	78%	63%	71%
Convert to Lowest Percent Active Duty (by Sub-function Code)				
Reduced Military Authorizations	125	575	0	700
New Civilian Authorizations	100	460	0	560
Post-Conversion Active Authorizations	961	1,603	421	2,985
Post-Conversion Civilian Authorizations	615	955	207	1,777
Contractor FTEs	172	106	40	319
Total Post-Conversion Positions	1,748	2,664	668	5,081
% Active	55%	60%	63%	59%
Active and Civilian Manpower Annual Costs to DoD (FY 2014, millions)				
Before Conversion	\$178.57	\$274.49	\$65.55	\$518.60
After Conversion	\$174.82	\$249.32	\$65.55	\$489.69
Estimated Annual Savings to DoD	\$3.74	\$25.17	\$0.00	\$28.91
Annual Manpower Costs to Federal Government (FY 2014, millions)				
Before Conversion	\$233.10	\$378.09	\$86.69	\$697.89
After Conversion	\$224.19	\$328.65	\$86.69	\$639.53
Estimated Annual Savings to Government	\$8.91	\$49.44	\$0.00	\$58.35

Table C-10. Potential Savings from Military-to-Civilian Conversions in Service Personnel Command Organizations

	Army	Navy	Air Force	Total
IG/CA Inventory				
Active Authorizations (in sample)	54	793	585	1,432
Civilian Authorizations	127	442	340	909
Contractor FTE	3	7	5	14
Total	184	1,242	930	2,355
% Active	29%	64%	63%	61%
Convert to Lowest Percent Active Duty (by Sub-function Code)				
Reduced Military Authorizations	0	118	0	118
New Civilian Authorizations	0	94	0	94
Post-Conversion Active Authorizations	54	675	585	1,314
Post-Conversion Civilian Authorizations	127	536	340	1,003
Contractor FTEs	3	7	5	14
Total Post-Conversion Positions	184	1,219	930	2,332
3% Active	29%	55%	63%	56%
Active and Civilian Manpower Annual Costs to DoD (FY 2014, millions)				
Before Conversion	\$19.58	\$136.30	\$108.73	\$264.61
After Conversion	\$19.58	\$134.64	\$108.73	\$262.95
Estimated Annual Savings to DoD	\$0.00	\$1.67	\$0.00	\$1.67
Annual Manpower Costs to Federal Government (FY 2014, millions)				
Before Conversion	\$22.99	\$176.39	\$139.22	\$338.60
After Conversion	\$22.99	\$169.97	\$139.22	\$332.18
Estimated Annual Savings to Government	\$0.00	\$6.42	\$0.00	\$6.42

Appendix D. Cost Methodology

A. Cost Components and Sources

A significant portion of the following discussion is taken from Whitley et al. (2014)¹ Table 10 and Table 11 in Section 4.C list the components used to cost Active Duty and civilian personnel. We describe each of these cost components in more detail below.

1. Military Personnel Costs

a. Costs to DoD

1) Composite Rate Elements

We computed the average composite rate for each department by weighting the composite rate for each rank by the end strength of that rank. The composite rate includes basic pay, allowances, Social Security and Medicare, retired pay accrual, travel/Permanent Change of Station (PCS)/transportation subsidy, the health benefit for retirees (>65 Medicare-Eligible Retiree Health Care Fund (MERHCF) accrual), separation pay and travel, death gratuities, survivor benefits, unemployment benefits, and health benefits for Active Duty personnel and their families.

2) Recruitment and Training Costs

We estimate average recruitment and training costs for each department using the 2014 Military Personnel Programs budget documents. We follow the Congressional Budget Office (CBO)'s example and exclude training costs that are unlikely to be affected by the conversions discussed in this paper (i.e., flight training; depot maintenance; facility sustainment, restoration, and modernization; and base support).

3) Family Support Services

The term *Family Support Services* refers to a set of programs and outreach services supporting military members and their families. Examples of these services include family counseling, spouse employment and career opportunities training, and financial outreach

¹ John E. Whitley et al., "Medical Total Force Management," IDA Paper P-5047 (Alexandria, VA: Institute for Defense Analyses, May 2014).

and counseling. We estimate the per-person cost by dividing the Department of Defense Dependents Education (DoDDE) Family Assistance/Family Advocacy Programs 2014 budget by 2014 Active Duty end strength.

4) Discount Groceries

Discount groceries cost data represent the cost of commissaries, distribution centers, and one meat processing plant.

5) Health Benefit, Retiree (<65 retiree and family) and >65 Plus Up

The DoD Office of the Actuary is the source of the FY 2014 data for the retiree health benefit (the notional pre-Medicare piece plus the notional incremental accrual cost piece for direct care not paid from the non-MERHCF (non-Medicare-eligible)). The office is also the source of the FY 2014 data for the >65 Plus up (notional incremental accrual cost piece for direct care not paid from the MERHCF (Medicare-eligible)).

6) Transitional Assistance Management Program (TAMP), Continued Health Care Benefit Program (CHCBP), and Retiree Discount Groceries

The Medical Readiness Review (MRR) combined the aforementioned elements and calculated a notional accrual rate for the sum of these elements to be 1.73 percent of average basic pay. The Institute for Defense Analyses (IDA) used the same rate in its cost computations.

2. Other Federal Agency Costs

a. Concurrent Receipt (Department of the Treasury)

Concurrent receipt means to receive both military retirement benefits and VA disability compensation. The Department of the Treasury is responsible for paying this cost. The cost for concurrent receipt is calculated as 11.20 percent of average base pay. This value comes from the DoD Office of the Actuary.

b. Tax Benefit (Department of the Treasury)

Since military compensation is generally exempt from taxation, the Department of the Treasury makes a payment to cover the shortfall in tax revenue from military Service members. These data come from the 2006 MRR. DoDI 7041.04 excludes this cost element from cost computations.

c. Child Education/Impact Aid (Department of Education)

The Department of Education's Impact Aid program provides financial support to school districts affected by federal activities, such as the operation of military installations. Since the property on which a military family lives is exempt from local property taxes, districts are not able to access the primary local source of revenue used by most communities to finance education. Impact Aid helps replace the lost local revenue to pay for the education of children from military families.

d. Deferred Veterans' Benefits (Department of Veterans Affairs)

Veterans receive a range of benefits that can be divided into two broad categories: veterans' health benefits and non-medical benefits. (Non-medical veterans' benefits include disability compensation, education and training, rehabilitation and employment, mortgage and other loan assistance, pensions, and burials.) These costs are not accounted for in the DoD budget. Instead, the Department of Veterans' Affairs (VA) pays for these costs when the benefits are provided, i.e., after the employee has retired from military service.

e. Employment Training (Department of Labor)

The Department of Labor provides career services and employment training for veterans.

B. Civilian Personnel Costs

1. Variable Costs in Short Run

a. Basic Pay/Locality Pay

In the data supplemental to their 2015 report, CBO reports annual basic pay plus locality pay for all of the subspecialties in this paper except Management Headquarters—Community and Family Services. For this subspecialty, we set basic pay plus locality pay equal to the Human Resources Management Series, as CBO also did for Military Personnel Operations and Military Recruiting and Examining Operations (back office).

b. Load Factors

Other components of civilian compensation were rolled up into load factors. To calculate the cost of these Components, IDA multiplied these load factors, which were in the form of rates, by basic pay.

1) OC11 Load Factor

The OC11 load factor contains Title 38 Medical Premium Pay, overtime/holiday/other pays, and incentive/performance awards.

2) OC12 Load Factor

The OC12 load factor contains retention allowance, Social Security and Medicare (employer's contribution), recruitment/relocation bonuses, health care (employer's share of Federal Employees Health Benefits Program (FEHBP)), PCS, Federal Employee Group Life Insurance, transportation subsidies, worker's compensation payments, retirement accrual (employer's contribution), Federal Retirement Thrift Investment Board payments (Thrift Savings Plan (TSP) matching), and Unemployment Insurance Payments (Federal Unemployment Tax Act).

3) OC13 Load Factor

The OC13 load factor contains severance pay/separation incentive and the severance health benefit.

c. Education Assistance, Recruiting, and Advertising

CBO reports these values are very small for civilians, so we do not include them in our cost estimates.

d. Training

Civilian training costs are derived from Cost Assessment and Program Evaluation (CAPE)'s Full Cost of Manpower (FCoM) Tool.

e. Retirement Benefits

This cost element includes the unfunded portion of retirement benefits, post-retirement healthcare and post-retirement life insurance.

Illustrations

Figures

Figure 1. FY 2013 Authorizations for Training Development and Support for Military Education and Training by Military Department (CONUS Authorizations).....	39
Figure 2. FY 2013 Authorizations for Military Recruiting and Examining Operations (Back Office) by Military Department (CONUS Authorizations).....	40

Tables

Table 1. IG/CA Manpower Mix Criteria Code Descriptions	16
Table 2. FY 2013 Military-Civilian Workforce Mix by Department and IG/CA Criteria (CONUS)	18
Table 3. FY 2013 Military-Civilian Workforce Mix by Department and IG/CA Function Codes (CONUS).....	20
Table 4. FY 2013 Contractor FTEs by ICS Product Service Category and Department.....	21
Table 5. Analyzed Sub-Functions	25
Table 6. FY 2013 Authorizations of Selected E&T and P&SS Sub-functions.....	28
Table 7. SSF Model Billet Ratio for Selected Ratings, FY 2014	29
Table 8. FY 2013 IG/CA Military Authorizations with Criteria Code J.....	30
Table 9. Distribution of Active Authorizations in Strict Exclusion Sample	32
Table 10. Active Duty Personnel Cost Components and Sources	33
Table 11. Civilian Personnel Cost Components and Sources.....	34
Table 12. Average Annual Costs of Active Duty Service Members and Civilians (\$FY14).....	35
Table 13. Authorizations after Military-to-Civilian Conversion in the Military Education and Training Sub-function.....	39
Table 14. Authorizations after Military-to-Civilian Conversion in the Military Recruiting and Examining Operations (Back Office) Sub-function	41
Table 15. Potential Savings from Military-to-Civilian Conversions in Education and Training Sub-functions	42
Table 16. Potential Savings from Military-to-Civilian Conversions in Personnel and Social Services Sub-functions.....	43
Table 17. Potential Savings from Military-to-Civilian Conversions in Recruiting Organizations	45
Table 18. Potential Savings from Military-to-Civilian Conversions in Military Skills Training Organizations	46

Table 19. Potential Savings from Military-to-Civilian Conversions in Headquarters Support Organizations	47
Table 20. Potential Savings from Military-to-Civilian Conversions in Installation Support Organizations	48
Table 21. Potential Savings from Military-to-Civilian Conversions in Training Centers Organizations	49
Table 22. Potential Savings from Military-to-Civilian Conversions in Training Support Organizations	50
Table 23. Potential Savings from Military-to-Civilian Conversions in Service Personnel Command Organizations	51

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Abbreviations

CAPE	Cost Assessment and Program Evaluation
CBO	Congressional Budget Office
CHCBP	Continued Health Care Benefit Program
CIVPERS	Civilian Personnel Budget
CONUS	Continental United States
DHP	Defense Health Program
DoD	Department of Defense
DoDD	Department of Defense Directive
DoDDE	Department of Defense Dependents Education
DoDI	Department of Defense Instruction
E&T	Education and Training
FCoM	Full Cost of Manpower
FEHBP	Federal Employees Health Benefits Program
FTE	Full-Time Equivalent
FY	Fiscal Year
GAO	General Accounting Office/Government Accountability Office
HASC	House Armed Services Committee
ICS	Inventory of Contracts for Services
IDA	Institute for Defense Analyses
IG/CA	Inherently Governmental and Commercial Activities
MERHCF	Medicare-Eligible Retiree Health Care Fund
MILPERS	Military Personnel Budget
MRR	Medical Readiness Review
NATC	Naval Air Training Command
NATTC	Naval Air Technical Training Center
NDAA	National Defense Authorization Act
O&M	Operations and Maintenance
OMB	Office of Management and Budget
OSD	Office of the Secretary of Defense
P&SS	Personnel and Social Services
PCS	Permanent Change of Station

PPBE	Planning, Programming, and Budgeting Execution
R&D	Research and Development
SASC	Senate Armed Services Committee
SSFM	Sea Shore Flow Model
TAMP	Transitional Assistance Management Program
TRADOC	Training and Doctrine Command
US	United States
USD(C)	Under Secretary of Defense (Comptroller)
USD(P&R)	Under Secretary of Defense for Personnel and Readiness
USMC	United States Marine Corps
ZIP	Zone Improvement Program

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