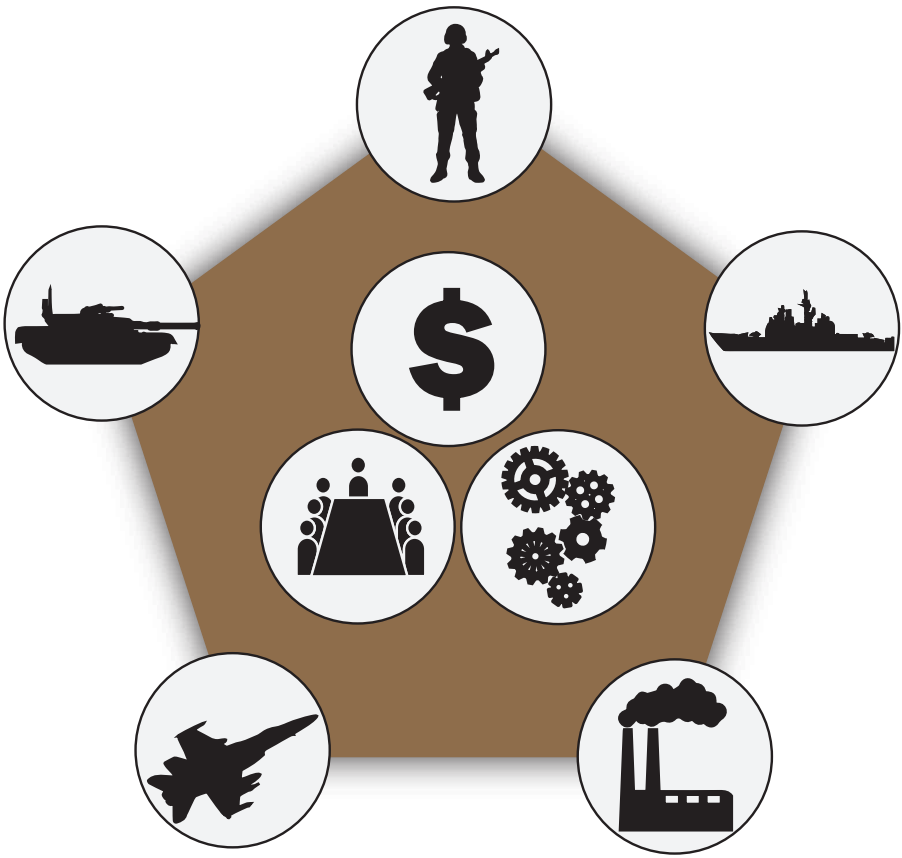
BUILDING DEFENSE FORCES

PRIMER FOR SENIOR LEADERS



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DEPARTMENT OF COMMAND, LEADERSHIP, AND MANAGEMENT

UNITED STATES ARMY WAR COLLEGE

Building Defense Forces

Primer for Senior Leaders

Volume I: General Principles

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Tom Galvin (Editor)
Lou Yuengert
Bob Bradford
Jeff Wilson
Doug Orsi

Foreword by Robert O. Work

Department of Command, Leadership, and Management
School of Strategic Landpower
U.S. Army War College, Carlisle PA

Comments pertaining to this report are invited and should be forwarded to the corresponding editor, Dr. Thomas P. Galvin, Department of Command, Leadership, and Management, School of Strategic Landpower, U.S. Army War College, 651 Wright Avenue, Carlisle, PA 17013-5010.

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Table of Contents

List of Figures

Acknowledgements

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Foreword

Robert O. Work

The United States Department of Defense (DOD) is the largest business enterprise on the planet.

There are many ways to state its mission. I prefer the following: to recruit, organize, equip, train, educate, exercise, retain and maintain a Total Joint Force that is ready and prepared for war and operated forward to preserve, enforce, or compel the peace.

This mission statement captures the dual nature of the DOD business enterprise. There is an administrative practice focused on building, running and maintaining the Total Joint Force, and an operational practice focused on deploying and employing it in both peace and war. The combination of the two defines the art of defense management, which "translates national security policy and strategy into capability and capacity—a coevolution of ends, ways, and means."

As is proper for a force that guards our Nation's interests and protects our citizenry and allies, we often place heightened attention on DOD's operational practice. Only the best—those who have mastered the art and science of war and proven themselves in the crucible of command—rise to the highest levels of operational command.

The same is not always true for those who rise and lead the administrative practice. This is due to the misleading association of leadership solely to the operational practice and management solely to the administrative practice. In truth, one must be a highly effective leader to master the intricacies of administrative practice.

This shouldn't come as a surprise to anyone who has operated at the senior levels of the defense enterprise. This is where the executive-level decisions that guide the Department are made. It is where civilian control of the military is exercised; where best military advice is formulated and given; where Congressional oversight occurs; where national defense and national military strategies are created; where the program—the sum of all Joint

Force capabilities and capacities—is forged; where a supporting bud- get is built; where defense policies are developed and overseen; and where Department activities are explained to the American people.

Operating in this environment is not for the timid. A central task involves the allocation of resources among the four services, and among the various operational portfolios such as strategic deterrence; intelligence, surveillance and reconnaissance; tactical air forces; space and cyberspace, etc. It involves designating winners and losers. It involves intense bureaucratic infighting. The faint-hearted need not apply.

It is also the level that oversees the day-to-day activities of the Department, which are more extensive than any other business in the world.

They include, among other things, a standalone recruiting force and processes; four different training and academic institutions; a uniquely complicated payroll system; a giant real estate operation; an enormous health care system; a global grocery and retail chain; the largest email system in the world; an information technology portfolio that exceeds $45 billion; a global distribution system that rivals FedEx; and a vast research and development and acquisition enterprise. The range of activities is both breathtaking and daunting.

All these important tasks endure regardless of who occupies the White House or which party controls Congress. Being able to understand them—much less master them—requires the very highest measure of skill. And being able to do so while accounting for and adjusting to the vagaries of DOD's arcane planning, programming, budgeting and execution (PPBE) process and a Congress incapable of passing annual budgets on time re- quires an extraordinary amount of knowledge and patience.

And leadership. Executive-level decisions in the defense enterprise require the forging of coalitions of mutual interests, among civilian political leaders, long-serving government civil servants, and military leaders and their staffs. The old saying that there are those who watch things happen, those who make things happen, and those who ask, "what the heck just happened?" applies in spades at the senior levels of the defense enterprise.

Simple orders and directives seldom accomplish their intended purpose, even if given by the most senior leaders (including the Deputy Secretary of Defense!). Success rides on those who make things happen—who can convince a naturally conservative and sometimes reluctant bureaucracy that something should and can be done.

In sum, then, only those leaders comfortable operating at the swirling nexus of strategy, policy, operations, programs and budgets, willing to offer best military advice under conditions of uncertainty and sometimes great disagreement, who understand the demands of both DOD's operational and administrative practices, and have mastered the ins and outs of the PPBE and Congressional budgeting, and who can make things happen can succeed at the senior levels of the defense enterprise.

Success starts with knowledge. This Primer provides the first step along the long road to achieve it. Please take it seriously, and to heart. Best of luck! You are going to need it!

Robert O. Work served as the 32nd Deputy Secretary of Defense from May 2014 through July 2017. From 2009 to 2013, Mr. Work served as the Undersecretary of the Navy. In this capacity, he was the Deputy and Principal Assistant to the Secretary of the Navy and acted with full authority of the Secretary in the day-to-day management of the Department of the Navy. He also served on President-elect Barack Obama's Department of Defense Transition Team in 2008 as leader of the Department of the Navy issues team. He retired as a colonel in the U.S. Marine Corps after 27 years of active service.

Preface[1]

Building defense forces (BDF) resides at the nexus of national security policy, strategy, campaigning, and strategic leadership. It is how our government translates national security policies and strategies into trained and ready forces for combatant commanders—units of personnel and equipment that mobilize, deploy, conduct, sustain, redeploy, and demobilize.

However, it is far more complicated than managing forces on hand. It involves the development of new ones to address emerging threats, posturing forces around the globe for ease of employment, and ensuring adequate command, control, and support in garrison and during operations. Thus, BDF is less about the details of personnel, equipment, and facilities and more about what the overall force can do now (capabilities), how much it can do (capacity), and what it needs to do that it cannot (requirements). Moreover, the forces that services provide for operations must be interoperable for unity of effort and versatile so as to adapt and respond to changes in the environment. BDF is also not a linear process that moves from strategies to forces on hand. Rather, the ends, ways, and means co-evolve because the environment changes faster than the military can develop new capabilities, and available resources are never sufficient to satisfy the national strategies. Therefore, defense management is also an exercise in managing risk. Ensure the vital interests are covered and address the rest when one can.

This work is difficult and data intensive. Somehow the intangible, abstract, and sometimes ambiguous goals ex-pressed in strategies must be translated into assets—dollars, personnel, materiel, facilities, infrastructure, real estate, contracts, agreements, and so on. It involves many strategic decisions on what to prioritize, what to stop doing, where to shift resources and energy, or what to defer for later. Defense managers therefore rely on numerous decision support systems (e.g., automated data

[1] This is expanded from the original preface of the Defense Management Primer (2018).

processing tools) and processes (e.g., boards, centers, working groups, teams) to provide the necessary analysis to make the best decisions for the military. However, these systems and processes also require continuous critical evaluation and modification to ensure the completeness of analysis and acceptability of any strategic decision among internal and external stakeholders.

In military culture, the enterprise side of the military is not as glamorous or exciting as command. It is not uncommon for students in the U.S. Army War College to prefer their next assignment be in a command or similar billet far from the Pentagon. However, building defense forces involves all senior military and civilian leaders. The adage that *colonels run the Army* is true, and it applies to all O-6s and GS-13s through 15s. They devote much of their time and energy to developing requirements, participating in councils of colonels or other boards, providing data and information to decision-makers, rendering advice to their commanders on upcoming strategic decisions, and spending a lot of time in conferences and meetings with counterparts in Washington. War College graduates will spend much of the remainder of their careers (or beyond as civilians or contractors) involved in the defense enterprise.

It was for these reasons that seven years ago we published the original Defense Management (DM) Primer. Since then, we in the Department of Command, Leadership, and Management have wrestled with several questions regarding our then-Defense Management curriculum and its relationship with other components of War College programs. In the mid-2010s, when we initially planned the 1st edition, the DM course[2] was reserved solely for US students and the course materials presented select service and joint processes and systems that dominated enterprise decision-making, like the Planning, Programming, Budgeting, and Execution (PPBE) system, the Defense Acquisition System, and Total Army Analysis. Based on presumptions that the

[2] The course went under various names over time – Joint Processes and Landpower Development (JPLD) until academic year 2011 and Defense Enterprise Management (DEM) until academic year 2013.

material was not useful to non-US students, the War College would send the international fellows to separate events during DM.

The 1st edition presented the information according to the echelons of the US defense enterprise – defense, joint, and service. This worked for the audience at the time. The typical US student was a post-battalion commander or other senior lieutenant colonel with limited enterprise experience and was not familiar with how DoD worked. Exposing them to the lingo would help overcome some of the early-entry hurdles of post-graduation assignments to places like the Pentagon or combatant commands.

Times have changed, and we have found ourselves wrestling with new questions about the new BDF curricula, its associated body of knowledge, and the ever-changing management and administrative roles that senior leaders play in the defense enterprise. We will address two of them here that provided the basis for what became a significant reconceptualization of the DM Primer. The first question was, "*Do we focus students on detailed information that they can immediately apply to their likely next assignment, or to prepare them for the longer term to shape the enterprise?*" In other words, must students learn how to turn the crank of the machine faster or design a better machine?

The answer is both, but the former has traditionally held sway for two practical reasons. First, going back at least to the 1990s, DM has long been treated as a matter of pure practice – "strategic leadership applied." The common understanding was that enterprise leaders in the Pentagon or elsewhere expected graduates to be conversant in current practices and be immediately effective. Because many War College students lack enterprise experience entirely, DM had to cover the basics and get everyone to an acceptable standard. Second, the quantity of faculty members experienced in DM matters has always been limited and therefore more weighted toward current practice and contemporary issues. Theory development was not considered as important.

The practical downside is clear. Without tools to critically evaluate the efficacy and efficiency of current practices, graduates would lack the capacity to consider what the enterprise is trying to accomplish and find better ways, such as introducing best practices from industry or elsewhere. Robert K. Merton's concept of a *middle-range theory* is useful, allowing for a range of seemingly disparate phenomena (like the natural tensions between funding readiness vs. modernizing) to be unified under a theoretical framework, yet still within reach of practical application such that empirical study remains possible.[3]

This Primer, like others released by the US Army War College in recent years,[4] is one step toward building middle-range theories for BDF. We built it around the Strategic Choices Framework (see Chapter 1) that presents a holistic view of how leaders balance the distribution of resources in three ways – readiness, force structure, and future investments ("modernization"). Each of these has its internal framework for decisions. For example, in force structure, one must decide how much of each capability is needed, but the resulting force may be unaffordable and therefore where are leaders willing to take risk? Or in modernization, to what extent should leaders upgrade older platforms or pursue new ones since doing both may not be affordable? In this way, the Primer not only informs current practice but raises ideas about building enterprise-level strategies such as future global force posture.

The second question was "*Do our international fellows (IFs) need to learn about building defense forces? If so, how?*"

The answer is a resounding *yes*. Over the years, our IFs have clamored for taking the course while interagency students found our curriculum just as practical for them. While each nation and agency has vastly different organizations, processes, and systems

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[3] Robert K. Merton, "On Sociological Theories of the Middle Range," in Robert K. Merton, *Social Theory and Social Structure* (New York: Simon & Schuster, 1949), 39-53.

[4] *WAR ROOM: The Online Journal of the US Army War College* hosts these Primers on their "Reference Materials" page at https://warroom.armywarcollege.edu/reference-materials

that govern their distributions of resources and activities, the nature and characters of the decisions are essentially the same. Many IF research projects over the years covered defense enterprise-related issues and challenges, resulting in project advisors funneling DM course materials to the IFs to help them along. But without a middle-range theory to help all faculty make sense of DM, the demand for expertise became even more concentrated on the few DM experts and practitioners and there was no vehicle beyond the venerable *How the Army Runs* reference guide[5] to facilitate the sharing of expertise to other professional military education institutions.

Thus, when we in the Department of Command, Leadership, and Management set out to prepare the new Primer, we decided that a simple update was not going to be enough. We needed two separate products aimed at two different audiences. There still needs to be a US-centered product that exercises applied theory and explains how the US defense enterprise does business. As with the 1st edition, readers would be: (a) introduced to the defense, joint, service, and intraservice layers, (b) understand how in the US systems resources are requested, acquired, distributed, and expanded across the range of programs, and (c) appreciate how the various persistent tensions such as joint-service, conventional-unconventional, active-reserve, and others influence defense decisions.

This volume is new and provides a middle-range theoretical foundation for understanding any defense enterprise. While the foundation has not been empirically tested, it has been student-tested. The Strategic Choices Framework that the theory is built around has been very successful in helping both US and IF students describe their high-level military organizational structures and decision-making tools. The subordinate frameworks presented here on force structure, modernization, readiness, risk, people, and resources draw from long-standing

[5] Current issues of *How the Army Runs* are available at the *WAR ROOM* Reference Materials link (https://warroom.armywarcollege.edu/reference-materials). Back issues are also available from the Department of Command, Leadership, and Management.

theories from organizational studies and management science, especially organizational design, sociotechnical systems theory, decision support system theory, and public administration. These provide practical lenses with which many defense enterprise decisions can be examined with both rigor and clarity.

The final three chapters provide the "so what?" that middle-range theorizing provides – tools that allow defense managers to take action to solve problems. The approach taken is one of ends, ways, and means. The "ends" are measures of performance, which is to say in what ways do defense managers gauge the performance of the defense enterprise? The umbrella measure of providing trained and ready forces for combatant commanders is incredibly vague. There are several details needed, such as how many forces, when and where needed, how we know they are trained and ready, and how can we expend the minimum resources necessary to train and ready them. The problem is that such measures are elusive and actions we may take to improve the efficiency of the enterprise may not take effect right away. Also, efficiency in peace may not be the same thing as efficiency in war. So, Chapter 10 delves into the many meanings of efficiency and therefore different approaches to understanding how well the defense enterprise is performing its missions.

The next of these, represents the "ways," is the decision support system, something that is ubiquitous in defense organizations. Because of their overall complexity, defense decisions are rarely made by a senior leader alone – they must consult with people who are (hopefully) expert or knowledgeable on the issue and use systems to help collect, analyze, and synthesize large volumes of data. Decision support systems are everywhere in the enterprise -- an old chart depicting the Army Force Generation Model contained hundreds of interdependent processes and systems, each of which plays a decision-support role. But in today's dynamic and competitive global security environment, it is not enough for today's defense managers to know how to turn the crank of these systems faster. They need to be prepared to design and implement better ones so the military can maintain decisive overmatch over adversaries.

The "means" are programmatics, which are the levers available at the strategic level to effect change. While unit leaders address the problems of organizational climate, culture, change, and communication through their leadership skills, enterprise leaders use programs. In times of crisis, periods of uncertainty, or even routine challenges, defense managers use programs as the resolution. They create or remove structures, issue policies and directives, redistribute resources, require data and feedback, and conduct other administrative or bureaucratic activities to achieve the desired result. Ostensibly, these activities would be harmonized with unit leader requirements and activities so that the warfighters' needs are served, but unfortunately, operational and enterprise perspectives too often clash.

We hope you find this newest addition to the building defense forces canon to be useful and instructive, regardless of which nation, agency, service, branch, or component you serve.

1. What is a "Defense Enterprise"?

Tom Galvin, Lou Yuengert, and Bob Bradford

Many U.S. Army War College students hold the view that militaries are not like corporations, often citing the military's lack of a profit motive as justification. While this view holds some truth, logical follow-up questions are usually unasked and unanswered. First, *what kind of organizations are militaries?* Second, *what does that suggest about a military's structure, processes, and related behavior?* This chapter will help answer these questions and provide a better understanding of how militaries behave compared with other large public- and private-sector organizations. It will also help explain the unique organizational aspects of militaries and the secretariats or ministries over them as they strive to develop the capabilities needed to satisfy the nation's security requirements.

The term *military* can be misleading in this context. Its definition, "of or relating to armed forces,"[1] introduces a bias toward the warfighting context and the uniformed service members who fight wars. This is only part of the context and leaves out the important force provider role.[2] For that reason, this primer will prefer a larger, more holistic term that encompasses the whole institution and its political role in mobilizing the nation's resources to develop capabilities and thereby provide trained and ready forces. The term used here will be the *defense enterprise*.

The defense enterprise combines four distinct characteristics—those of a: (1) very large, (2) public-sector, (3) professional, and (4) preparedness organization. These characteristics are often complementary, but they also produce natural tensions (e.g., public-sector bureaucracy versus profession[3]). The purpose of this chapter is to define and explain

[1] Merriam-Webster, s.v. "Military," http://www.merriam-webster.com/dictionary/military

[2] U.S. Department of Defense, "About," https://www.defense.gov/about/

[3] Don M. Snider, "The U.S. Army as a Profession," in *The Future of the Army Profession*, 2nd ed., eds. Don M. Snider and Lloyd J. Matthews (Boston: McGraw-Hill, 2005), 14.

these behaviors, drawing from the fields of microeconomics and management.

Defining the Defense Enterprise

The Merriam-Webster Dictionary defines an *enterprise* as both "a unit of economic organization or activity" and "a systematically purposeful activity."[4] This is a good fit for describing a military's roles without connoting commercial activity (i.e., like the similar terms "business," "industry," or "firm"). Therefore, the *defense enterprise* is defined as a political-military activity whose purpose is to generate and sustain capability to meet national security requirements under authorities established by politically appointed civilian leaders. The defense enterprise is essentially a civil-military partnership, whereby national leaders and defense managers work together on behalf of the nation, with the latter fully accountable to the former. Generating and sustaining capability is done systematically. The tools of the enterprise are its processes and systems that help execute authorities, assign responsibilities, and ensure accountability.

The defense enterprise is more than just the military and the government officials that oversee it. It includes all organizations and capabilities officially involved in the mobilization, employment, and conduct of military operations through legal or contractual arrangements. It includes other government and non-government entities which enable the military in times of peace and war. The *defense industrial base*, for example, includes both public- and private-sector firms that contribute to current readiness, modernization, mobilization, the conduct of military operations, and other military activities.[5] *Research organizations* such as private laboratories and academia conduct government-sponsored research to support the development and enhancement of military capabilities, review strategies and

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[4] Merriam-Webster, s.v. "Enterprise," http://www.merriam-webster.com/dictionary/enterprise

[5] Barry Watts, *The US Defense Industrial Base: Past, Present, and Future* (Washington, DC: Center for Strategic and Budgetary Assessments, October 2008), 2.

policies, and other functions.[6] *Federal departments and agencies* provide the diplomatic, informational, and economic elements of power to complement the military. For example, in the United States, its Department of Homeland Security includes the Coast Guard, which is realigned under the Department of the Navy in times of war. *National Response Framework Support Agencies* include national, local, territorial, private sector, and non-governmental/volunteer organizations that provide the capacity to prevent, mitigate, respond to, and recover from national disasters and crises.[7] The abilities of these agencies to mitigate domestic security concerns together are critical to defending the nation in times of crisis.[8]

State, provincial, and local agencies are also part of the enterprise. Departments or ministries responsible for transportation contribute to and manage much of the physical infrastructure the military would use for deployments. Local infrastructure needed for defense includes seaports, airports, railyards, roadways, and other facilities or real estate to support mobilization and movement of forces.

The defense enterprise may also include auxiliaries and volunteer organizations that could be activated when needed. In the United States, volunteer organizations include service-level auxiliaries. The Civil Air Patrol (Title 36) is a non-profit corporation that augments the Air Force and provides aviation for search-and-rescue, disaster relief, and other missions. The Merchant Marine (Title 49) is a private volunteer fleet of ships available to transport cargo and personnel. There are also Patriotic Organizations listed in Title 36, Subtitle II. These are not agencies of the U.S. Government but are organizations "with a patriotic, charitable, historical, [or] educational" purpose who are federally chartered.[9] Relationships with the defense enterprise may be

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[6] Watts, *The US Defense Industrial Base*.

[7] Federal Emergency Management Agency (FEMA), *National Response Framework*, 2nd ed. (Washington, DC: U.S. Department of Homeland Security, May 2013).

[8] FEMA, *National Response Framework*, 19.

[9] Kevin R. Kosar, *Congressionally Chartered Nonprofit Organizations ("Title 36 Corporations"): What They Are and How Congress Treats Them*, CRS Report #RL30340 (Washington, DC: Library of Congress, Congressional Research Service, June 17, 2011).

established through memoranda of understanding, formal charters, interagency agreements, and contracts (such as acquisition of goods or services from the private sector).[10]

The defense enterprise is a *very large, public-sector, professional, preparedness* organization. Each component of this description is significant and is elaborated in the following sections.

A "Very Large" Organization

The scope and size of the enterprise warrant special attention. Service end strengths easily exceeding one million men and women, combining active duty and reserve components; including civilians, contractors, family members, defense industrial partners, etc., make it readily apparent how large and complex the defense enterprise is. Turcotte (2018) describes *very large organizations* as follows:

> *[A] multifunctional organization with at least five hierarchical levels and a very complex external environment from which resources and directions flow. In such an organization, the range of top management responsibilities allows only infrequent, though often intense, interactions with most subordinates. Opportunities for personal direction and role-centered leadership patterns are limited. The range and complexity of organizational issues make it difficult for executives to master the details involved. They must instead develop skills in abstracting the essence, implication, and key ideas from complex issues.*[11]

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[10] For example, *Memorandum of Understanding Between the United States Department of Defense and the American Red Cross*, March 10, 2009, that allows the Red Cross to operate on DOD installations to support the military's blood supply; These include Patriotic Organizations, 36 U.S.C., Subtitle II. This includes the following entities: Civil Air Patrol, 36 U.S.C., Chapter 403 and American Battlefield Monuments Commission, 36 U.S.C., Chapter 21; For example, see Federal Emergency Management Agency, *National Incident Management System*, 3rd ed. (Washington, DC: U.S. Department of Homeland Security, October 2017) that includes DOD requirements to support national emergencies.

[11] William E. Turcotte, "Executive Strategy Issues for Very Large Organizations," in *Concepts for Air Force Leadership*, 5th ed., eds. Richard I. Lester and A. Glenn Morton (Maxwell AFB, AL: Air University, second printing 2018), 153, https://www.airuniversity.af.edu/Portals/10/AUPress/Books/AU-24_Concepts_for_Air_Force_Leadership.pdf.

The real meaning of "large" or "very large," whether in terms of on-hand assets or numbers of personnel, depends greatly on the industry.[12] On both counts the U.S. defense enterprise is massive and is considered the largest and most powerful of any nation.[13] The DOD employs over two million personnel and holds trillions of dollars in assets.[14]

But becoming and staying very large comes with a price. Pleshko & Nickerson (2007) shows that as an organization grows, so too does its formalization, integration, centralization, and complexity.[15] They further observe that even if an organization does not change in size, its natural tendency is to grow more formal, centralized, and complex; that is, to become naturally more bureaucratic, a trait that the defense enterprise is well known for.[16] Turcotte (2018) summarizes the challenges for leaders at the top levels of very large organizations as follows: (1) being unable to rely on past experience, (2) agenda being "dominated by external events," (3) an inability to "get their arms around the organization," and (4) extremely limited time available to deal with internal matters which risks leading to conflicted policies and priorities.[17] He also notes change strategies that work well for smaller organizations may not necessarily work in very large ones, a finding supported by various studies on change.[18] These challenges are true for the defense enterprise.

Very large organizations are dynamic and complex, but they tend to adapt naturally toward a more stable, structured form that risks becoming hardened, bureaucratic, and unable to innovate or

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[12] Graham Beaver, "Small Firms: Owners and Entrepreneurs," *Strategic Change* 12, no. 4 (2003): 177-183.

[13] See for example, Global Firepower, "2025 Military Strength Ranking," https://www.globalfirepower.com/countries-listing.php. Website is updated annually at the same link.

[14] Department of Defense, "About the Department of Defense," *Department of Defense home page*, www.defense.gov/about.

[15] Larry P. Pleshko and Inge Nickerson, "Strategic Comparisons of Very Large Firms to Smaller Firms in a Financial Service Industry," *Academy of Strategic Management Journal* 6 (2007): 105-116, 105.

[16] Pleshko and Nickerson, "Strategic Corporations of Very Large Firms."

[17] Turcotte, "Executive Strategy Issues," 153.

[18] For example, Beaver, "Small Firms" and Pleshko and Nickerson, "Strategic Comparisons."

adapt. In his book *Accelerate*, Kotter (2014) described this as a natural part of the life cycle of an organization as it slowly adopts and institutionalizes successful habits and practices into its culture. This potentially moves the organization from a more dynamic network-based culture to one of managed hierarchy. Although Kotter notes that managed hierarchies are necessary for very large organizations to allow routine actions to remain routine in implementation, the strategic agility inherent in the networked approach is vitally important.[19] The U.S. Army's adoption of the Mission Command philosophy is an effort to go that direction, emphasizing how subunits should be trusted to make proper, autonomous decisions to achieve the commander's intent.[20] As espoused, Mission Command encourages localized, independent pursuit of innovative solutions to complement the pursuit of the higher headquarters commander's vision. However, what defense managers must understand is the complexity of implementing such a philosophy across such a large organization because of how differently it may be enacted among the different services and its subordinate commands and activities, and how it may change over time. The enterprise bureaucracy may impose (unintentionally) barriers to the exercise of Mission Command due to external stakeholder requirements or the desire to maintain stability in priorities, resource distribution, and strategic direction. So, what is espoused may not be enacted in practice.

A "Public-Sector Professional" Organization

The defense enterprise's public sector and professional attributes will be discussed together as they represent two sometimes-clashing perspectives. The conflict stems from the ordinary conditions that: (1) public-sector organizations are never sufficiently resourced to generate all the capability that the enterprise views as necessary to meet all requirements at minimal

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[19] John P. Kotter, *XLR8 (Accelerate)* (Boston, MA: Harvard University Press, 2014), 20-22.

[20] U.S. Joint Chiefs of Staff, *Command and Control for Joint Land Operations*, Joint Publication 3-31 (Washington, DC: U.S. Joint Chiefs of Staff, 2014); U.S. Department of the Army, *Mission Command*, Army Doctrinal Publication 6-0 (Washington, DC: Department of the Army, 2012).

risk, and (2) public-sector organizations receive continuous government oversight, ostensibly to ensure the efficient use of resources. By comparison, professional organizations consider effectiveness as paramount and efficiency as secondary.[21]

As a *professional* organization, the defense enterprise stewards the expert knowledge required to effectively employ military capabilities during operations. Qualities of professions include self-governance, custodianship of a domain of professional knowledge and expertise, and the granting of autonomy by society which implies a trusting relationship.[22] Militaries emphasize these professional qualities--some, like the US Army, treat professionalism as critically important and a central claim of their identities,[23] whereas others might not.

It is important to distinguish the defense enterprise as a professional organization from the military as a profession. While the civilian leaders of the defense enterprise certainly conduct themselves professionally, they are not necessarily "professionals" as defined in the professionalism literature.[24] As political appointees, the top civilian leaders may not be granted the same autonomy from society or sustain the domain of expert knowledge in the conduct of duties. This can raise tensions when military officers and their civilian leaders disagree. To mitigate this, militaries often place senior officers in direct advisory roles to national leaders. This way, leaders receive the needed professional advice and counsel to make decisions, and military leaders are better prepared and postured to enact those decisions even when they disagree with them.

As a *public-sector* organization, the defense enterprise operates as a bureaucracy, responsible for efficiently generating capabilities using the nation's resources entrusted to it. The defense enterprise's fundamental unit of analysis is the *program*,

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[21] Snider, "U.S. Army as a Profession," 14.

[22] Snider, "U.S. Army as a Profession," 14.

[23] Department of the Army, *Army Leadership and the Profession,* Army Doctrine Publication 6-22 (Washington, DC: Department of the Army, 2019).

[24] Andrew Abbott, "The Army and the Theory of Professions," in Lloyd J. Matthews (ed.), *The Future of the Army Profession*, 1st ed. (New York: McGraw-Hill, 2002), 523-536.

"activities and spending in terms of their contributions to organizational goals" that combines funding with the authorities (often referred to as the "color" of money) and timelines to spend it (see Chapter 7).[25] While these authorities may represent constraints on the enterprise's ability to operate efficiently, they function as effective and efficient means of oversight. Leaders can evaluate programs based on their delivery of capabilities on schedule and within budgets, and unsuccessful programs should in theory be reduced or canceled. However, choosing which programs to fund in the budget are political decisions as much as they are professional ones, and the cancellation of a program can impact effectiveness and may offset any savings generated.

The tension between the professional and public sector characteristics of the defense enterprise can result in complementary outcomes. Lacking the profit motive, the enterprise will prefer activities that increase effectiveness at the risk (to a point) of inefficiency.[26] Of course, the inverse can be a source of conflict if Congress does not grant sufficient resources to the enterprise, causing the latter to not provide the expected levels of desired service. Because the effectiveness and efficiency of providing such services are hard to measure quantitatively even in wartime, it is difficult to determine how many resources are precisely enough to protect the nation.

This leads to another vitally important defense enterprise activity: stewarding public resources. The military prudently leverages the assets the people have entrusted to it by eliminating (or at least minimizing) fraud, waste, and abuse. Congress and the executive branch demand full accountability and transparency from the enterprise's top leaders. Demonstrating such accountability requires senior leaders to satisfy legal requirements, such as producing mandated reports, making routine formal statements, and testifying before Congress. In practice, it also includes leadership actions to improve efficiency. Redundancy, for example, is normally discouraged, and many

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[25] William F. West, *Program Budgeting and the Performance Movement: The Elusive Quest for Efficiency in Government* (Washington, DC: Georgetown University Press, 2011), 10.

[26] West, *Program Budgeting*, 10.

stakeholders regard reducing redundancy as a minimum requirement for exercising good stewardship. Yet, this presents the joint force and the services with a significant challenge – posturing a U.S. military with the right balance of capacities and capabilities across land, sea, air, space, and cyber domains to provide defense of the nation without any exploitable gaps. At some level, redundancies provide resiliency and protect against the creation of such gaps.

A "Preparedness" Organization

The final attribute regards the fact that the defense enterprise does not perform its core function—fighting and winning the nation's wars—on a day-to-day basis. Commercial firms and many public sector organizations perform their core functions daily and measure *actual* performance on a routine basis. In contrast, militaries are like police, firefighters, emergency medical personnel, and other first responders in that they measure their *potential* to provide their prescribed services to the nation or society when called upon.[27]

Thus, militaries speak in terms of *preparedness*, which ostensibly measures their potential for success in combat when the nation calls. Preparedness is about answering *what* the military can accomplish *where* and *when* from a defense enterprise standpoint and is more than just a military responsibility. Nationally, being prepared for war requires the whole of the defense enterprise—including the national infrastructure, the defense industrial base, the homeland, relationships with allies and partners, and anything else that the military requires to fight and win. Thus, preparedness provides a benchmark of confidence

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[27] Harry Mayer, *First Responder Readiness: A Systems Approach to Readiness Assessment Using Model-Based Vulnerability Analysis Techniques* (masters thesis, Monterey, CA: Naval Postgraduate School, 2005) describes first response organizations as those who maintain resources for both conduct and enabling of response operations. Response operations are activities in which an organization mobilizes and employs resources based on an emerging condition, such that the activities aim to negate or mitigate said condition and restore some form of status quo ante. Emergency medical personnel, police, firefighting, and militaries fall into this category. This text prefers the term preparedness organization as it reflects the ordinary state of the organization between response operations, a state of preparedness to respond to the next contingency.

in the defense enterprise's ability to address threats to national security interests.[28]

The direct role of senior military leaders is to ensure the ability to provide trained and ready forces for combatant commanders, now and in the future. Thus, leaders use measures of *readiness* to analyze both the quality and quantity of forces available for operations. Readiness management systems provide the means for reliable and consistent analysis of personnel, equipment, and training statuses as both current snapshots and projected forward in time.[29] Such measures are probabilistic, in that a unit at highest readiness is expected to perform in combat better than a unit at lowest readiness.[30] This is an expectation based both on statistical analysis and combat experiences, and the enterprise designs the ratings to aid decision-making. However, the ratings are still a best guess! It is not possible to know until a combat situation whether the higher readiness unit would perform better. Therefore, preparedness organizations contend with a significant amount of uncertainty and strive to reduce uncertainty and risk when possible.

The Strategic Choices Framework

The previous section presented what the defense enterprise *is*, but another important question is what does it *do*? Much of this Primer focuses on the nature of enterprise decisions while Volume II will address the character of those decisions applied to the US context. At its simplest, any defense enterprise translates defense strategies and resources into capabilities needed to conduct military operations. It will do so by distributing those resources toward three buckets to generate capabilities that satisfy the strategy. This distribution is captured in the *strategic choices*

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[28] Thomas P. Galvin, *National Preparedness and Military Readiness: Primer for Senior Leaders* (Carlisle, PA: Department of Command, Leadership, and Management, 2024), chapter 1.

[29] Galvin, *National Preparedness and Military Readiness,* chapter 1.

[30] Using the U.S. military's C-ratings as an example, units at "C-1" would ordinarily outperform units at "C-4" on the battlefield, although this assumes that the rating assessment accurately reflects the anticipated performance. See Richard K. Betts, *Military Readiness: Concepts, Choices, Consequences* (Washington: Brookings Institution, 1995) and Galvin, *National Preparedness and Military Readiness*, chapter 5.

framework depicted in Figure 1. The elements of this framework are explained in subsequent chapters but are introduced below.

The three main concerns (resource "buckets") of the enterprise are shown as the points of the triangle at the center of the figure. *Force structure* decisions involve the force's design – its size, organization, and posture. *Readiness* decisions involve preparing the force as designed for possible operations – e.g. staffing, training, equipping, and sustaining. *Modernization* decisions involve improving future force capabilities through investments in new technologies or new development of new doctrine.

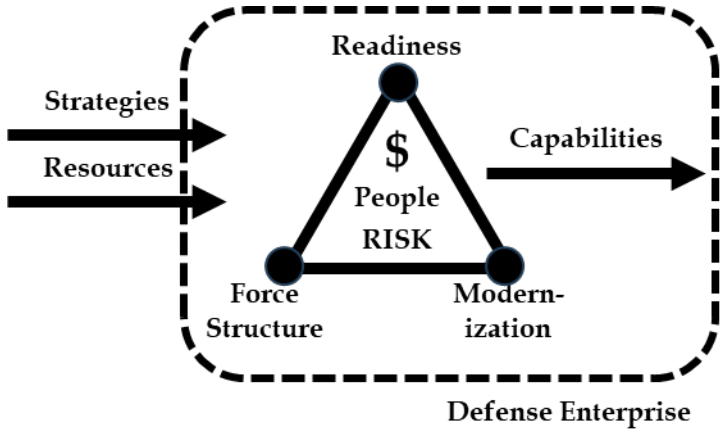

Figure 1. Strategic Choices Framework (General)[31]

The inputs to the enterprise are granted by the nation. *Strategies* give national direction to the force. What missions must the military perform? *Resources* are the means provided to build and fight the force. Resources ostensibly should be sufficient to satisfy the strategy but often are not. Spending public funds is ultimately a political decision, and national leaders may influence how defense leaders use their resources. The nation may direct the enterprise to spend money a certain way, such as mandated pay raises or directed purchases of weapons systems that defense

[31] Original graphic by author.

leaders might not have wanted. The nation can also prohibit defense leaders from spending money on designated goods or services such as capabilities deemed politically intolerable.

Defense leaders are the best postured to assess to what extent the appropriations received match the needs of the strategy, and they play important roles in developing sensible budgets. The nation may grant some authorities to defense leaders to reallocate resources (perhaps with notification or requiring permission) for crises or other unforeseen events. Throughout, defense leaders exercise their voice to inform the nation of imbalances, such as when overcommitting to current readiness forsakes modernization and the need to prepare for the future battlefield.

Implications

The defense enterprise's structure and the choices it makes have implications for relationships with stakeholders and its daily workings. Three such implications are offered here.

The Nation and Its Defense Enterprise as a 'Two-Way Monopoly'

The relationship between the nation and its defense enterprise is unlike that of any private sector entity and most other government entities. At a basic level, the nation turns to the military and the military alone to fight and win wars, and the military has no other client but the nation. In economic terms, the military is a *monopoly* and the nation[32] is a *monopsony*. The monopoly/monopsony relationship is also called a *bilateral* (or "two-way") *monopoly*.[33] This bi-lateral monopoly also applies to other entities in the defense enterprise. For example, commercial firms supplying weapon systems to the military may not be permitted to sell their wares elsewhere, and thus they become part of the dual monopoly. Other firms, such as producers of potable water and fuel, may not be so restricted.

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[32] The "client" is represented by Congress in this case as Congress has sole authority to purchase defense capabilities and fund operations.

[33] Barry R. Weingast and Mark J. Moran, "Bureaucratic Discretion or Congressional Control? Regulatory Policymaking by the Federal Trade Commission," *Journal of Political Economy* 91, no. 5 (October 1983): 765-800.

For those within the dual monopoly context, particular behaviors may appear. For example, there is continuous bargaining as both sides negotiate over the resources to be allocated for the defense function. Senior leaders in the defense enterprise will present unmet requirements to barter for more funding, while the nation's leaders must address constituent concerns across all government functions.

An important implication is the difficulty defense managers face in exercising transformational changes at the enterprise level. Transformational change often calls into question existing processes, systems, and information flow, leading to further bargaining with stakeholders. Even when the change is externally directed, stakeholders may constrain the defense managers' abilities to transform enterprise processes and systems in kind.

Dominance of Decision Support Systems

Each decision at the enterprise level is more than just the output of a decision-making process. Many decisions precede it. For example, the acquisition of a new capability involved decisions concerning the validation of a requirement; allocation of resources to research the science and develop the technologies; judgments regarding the readiness of those technologies; and processes to test, evaluate, and field the capability; and all the budgetary moves along the way. Similarly, restructuring a service involves many decisions, such as how to study the need to transform, any assumptions for models and simulations, interpreting the results, translating those results into options for re-organization and re-stationing, and then communicating the preferred choices to stakeholders. Each decision is likely to face opposition, regardless of the rationality of the senior leaders' choices. For more on these tools, see Chapter 10.

Because humans are naturally limited in their capacities, the enterprise makes systematic use of human and automated activities to collect and analyze vast amounts of information. This allows managers to collaborate and builds consensus with many internal and external stakeholders. Defense managers use both automated systems and human-borne processes to aid in decision-making, known as *decision support* activities. Why, when, and how decision support is used will be presented in Chapter 9.

Leading in the Defense Enterprise

For senior leaders whose prior experience is at the unit level of leadership, the tensions discussed above may appear foreign. Unit-level leaders are accustomed to making decisions based on their professional judgment and personal experiences. At the enterprise level, this manner of decision-making competes against the 'business model' of a public sector organization, and the continuous bargaining with external stakeholders that comes as a result. Senior leaders become exposed to an ever-expanding array of processes and systems to help justify new or changing requirements for military capabilities.

The good news is that the behaviors of the defense enterprise, while complex and quite challenging, can be explained and understood. Exposing leaders to the nature of the enterprise early in their career can help them effectively transition to work at this level. As leaders move higher in the organization, they must understand the nature of the enterprise, the strategic choices they can impact, and the unique aspects of the enterprise. Skills in direct leadership are not enough at the strategic level, and Army doctrine states leaders must develop them.[34]

Defense managers, however, should not fall into the trap of muddling along with the process and losing sight of the big picture. Famed sociologist Max Weber wrote, "It is certain that there can be no work in political economy on any other than an altruistic basis... If our work is to retain any meaning it can only be informed by this: concern for the future, for those who will come after us."[35] The defense enterprise exists to help provide for the national defense. Bureaucracy helps this very large, complex organization do precisely that. It only succeeds when the corps of defense managers apply vision and longer time horizons and avoid being shackled under the constant churn of the moment.

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[34] Department of the Army, *Developing Leaders*, Army Field Manual 6-22 (Headquarters, Department of the Army: Washington DC, November 2022), 1-6.

[35] Max Weber and Richard Swedberg, *Essays in Economic Sociology* (Princeton, NJ: Princeton University Press, 1999), 128.

2. Senior Leaders = Defense Managers

Tom Galvin

> *The word "bureaucracy" often carries a negative connotation, and it has been satirically defined as "the epoxy that greases the wheels of progress." This raises the question: what does it mean to be an effective strategic leader within a large bureaucracy like the Department of Defense? … [Strategic leaders] design and maintain bureaucratic systems that enable rather than hinder achieving strategic goals.*
>
> -- Kristen Behfar and Dale Watson (2019)
> from the Strategic Leadership Primer, 4th edition[1]

Most day-to-day running of the defense enterprise falls upon its newest senior leaders, keeping the military bureaucracy functioning as efficiently and effectively as possible. Upon graduation from the War College, count yourselves among them. Just as much as you are the next generation of senior leaders, you also comprise the next generation of defense managers. You are both leader and manager and will be henceforth for the remainder of your service.

Unfortunately, military culture celebrates leadership but dismisses management. It describes *leaders* as people of exceptional quality who inspire followers to do remarkable things. *Managers*, on the other hand, are often derided as bureaucrats who get in the way of leaders for self-serving reasons. This is a misperception damaging to the profession of arms. Effective senior leaders lead and manage both people and things. They also concern themselves with matters of both efficiency and effectiveness.[2] Winning the next war is about training and

[1] Kristin Behfar and Dale Watson, "Leading Large Bureaucratic Organizations: The Internal Environment," in Tom Galvin and Dale Watson (eds.), *Strategic Leadership: Primer for Senior Leaders*, 4th edition (Carlisle, PA: Department of Command, Leadership, and Management, 2019), 25.

[2] Andrew A. Hill and Thomas P. Galvin, "In Defense of Defense Management," *War On The Rocks*, July 6, 2016, https://warontherocks.com/2016/07/in-defense-of-defense-management/

motivating people and ensuring they are equipped and sustained for the fight. Warfighting commanders depend on the defense enterprise to provide trained and ready forces where and when needed. Running the enterprise is tough, but vital, work.

Some common duty assignments for new senior leaders include the following:

- As division chief in a service component command staff, combatant or sub-unified command staff, service staff or secretariat, or joint staff responsible for translating policy into strategy, strategy into programs, or programs into budgets
- As a subject matter expert or military advisor rendering best military advice to a senior leader in an executive branch department or ministry or as a fellow to a national security-oriented civilian body
- As a senior planner, translating strategies into requirements
- As a program executive officer or other official within a major acquisition program responsible for developing and fielding new capabilities to the force within the boundaries of cost and schedule
- As a division chief or senior team member preparing future doctrine, training, or education, or conducting high-level research into matters of policy and strategy

Despite the size and depth of the defense bureaucracy, many successful defense managers sustain focus on the long-term, think creatively and innovatively, and persist through needed improvements that help the institution perform its ultimate purpose: to be prepared to fight and win the next war.

Building Defense Forces: A Study of Tensions

Why is it so tough? Because virtually every strategic idea, decision, and action inflames an inherent tension in the environment. Six such tensions are shown in Figure 2, and it is not an exhaustive list. Strategy formulation at the national level invokes a tension between "rhetoric" -- the messages that national

leaders wish to send to allies, adversaries, and the public -- and "reality" -- what capabilities are available to match the rhetoric). The tension would be lessened if real-time objective measures were possible, but they are not. Rather, defense managers must rely on their judgment of how well-aligned the military's capabilities are with national strategies. And judgment can always be questioned by those with differing viewpoints.

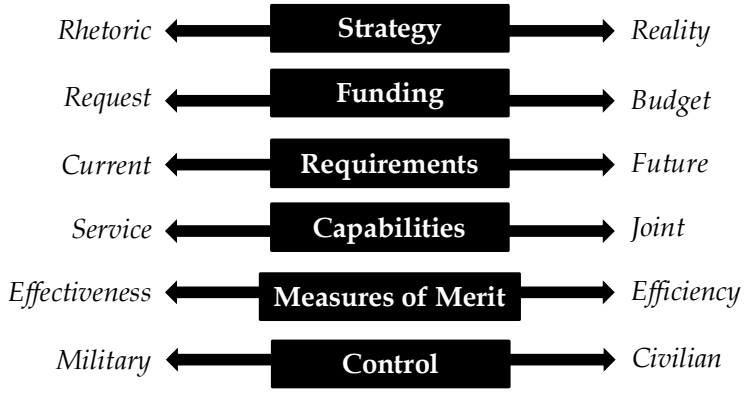

Figure 2. Tensions in the Defense Enterprise[3]

Funding is another source of tension, as the military's needs will often exceed the budget available. The shortfall constitutes risk, and senior leaders must determine what risk is acceptable. But what if the risk is not acceptable? When is it proper to share the wealth (or lack of it), and when must leaders stand their ground and demand increases to the budget?

Requirements and capabilities are two tensions that go hand-in-hand because together they influence the distribution of resources. Given finite resources, which should the enterprise emphasize more? Current readiness or modernization? And who should own and maintain those capabilities – the services, a joint command or agency, or up at cabinet department or ministry?

[3] Figure by author based on similar graphics used in the U.S. Army War College's defense management courses.

Services place a high value on autonomy, but joint and enterprise leaders are often under intense pressure to reduce redundancies.

Finally, there is tension over control of the defense enterprise. Among democratic nations, civilians exercise control over their militaries. Strategic decisions demand more than just the military's position—they need input from all elements of national power. However, military leaders will naturally resist decisions they view as detrimental to the force. This is neither good nor bad – it is simply an unpleasant part of life at the strategic level.

Navigating these tensions is an art. To do so, defense managers exercise strong strategic thinking, communication, and negotiation skills while demonstrating empathy, self-awareness, emotional intelligence, and perseverance. They are proactive, recognizing when prominent issues can become embroiled in conflict and working tirelessly to mitigate them. Competencies of good defense managers include the following.

Fostering Change

Defense managers exercise vision and provide strategic direction to the force. However, they rarely can devote the necessary energy to converting that vision into a strategic plan to be implemented. That translation process often falls to O-6s and GS-14s/15s, who must operationalize the vision and direction in the form of strategic plans, programs, and adjusted budgets with long- and short-term goals, objectives, targets, and measures of success.

Initiating Planned Change

Planned change efforts—in the forms of new programs and associated changes in doctrine, training, manning, etc.—are often referred to as "transformations" and come in three forms: internally focused, externally focused, and realignment.[4] *Internally-focused transformations* target the organization's

[4] George P. Huber, et al., "Understanding and Predicting Organizational Change," in *Organizational Change and Redesign*, eds. George P. Huber and William H. Glick (New York: Oxford, 1993), 223.

"internally focused goals, philosophy, or culture."[5] While these changes may be in response to adjustments in the overall environment, the effort is initiated and managed from within the defense establishment. General Eric Shinseki's Army Transformation of the late 1990s was an example of this type. Owing to lessons learned from operations in the Balkans and others in that decade, Shinseki sought to develop lightly armored units rather than the prevailing heavier forces and pursued "Future Combat Systems" that would be fully networked and interoperable by leveraging advancing technologies.[6] The Transformation ultimately did not succeed in its stated goals; it was always presumed to be a high-risk and ambitious endeavor (particularly given its length and that the events of 9/11 in 2001 severely impacted some of the Transformation's assumptions). Still, one comprehensive after-action study showed that the problems came more from execution rather than the initial vision.[7]

Externally focused transformations are described as changes in the "externally-focused strategy" or "important ways it interacts with customers, clients, or parent organizations," such as other government agencies, Congress, and the Nation.[8] Here, such external stakeholders establish the purpose and goals of the change and demand accountability for any perceived failures to bring the change to fruition. Operationalizing such goals involves both external and internal actions, but it is the external stakeholders whose assessments count most. One example of an externally focused change is the transition to the All-Volunteer Force (AVF) in the 1970s, owing heavily to President Nixon's leadership and growing public opposition to the draft. The AVF has so significantly altered the relationship between the American people and its armed forces that there is strong opposition to

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[5] Huber, "Understanding and Predicting," 223.

[6] Lynn E. Davis and Jeremy Shapiro, "The New National Security Strategy," in Lynn E. Davis and Jeremy Shapiro (eds.), *The U.S. Army and the New National Security Strategy* (Santa Monica, CA: RAND Corporation, 2003), 22.

[7] Christopher G. Pernin, et al., *Lessons from the Army's Future Combat Systems Program* (Santa Monica, CA: RAND Corporation, 2012), 1-4.

[8] Huber, "Understanding and Predicting," 223.

bringing back conscription.[9] Another example comes from legislation. The *Goldwater-Nichols Department of Defense Reorganization Act of 1986* forced the Services to institute "jointness" by strengthening civilian authority over the military, improving the quality of military advice to civilian leaders, and expanding the authorities and responsibilities of the combatant commands.[10]

Realignment transformations reflect "important changes in the responsibilities or resources" of organizational elements or their "additions or eliminations."[11] Such efforts take a military's existing capabilities and structures and re-orients them -- for employment in different locations, doing different missions, performing different tasks, and so on. Realignment transformations can grow capacity in response to increased demands, such as raising the Army's end strength which involves both recruiting more personnel and establishing new or expanded units for them to join, or emphasizing cutting structure, eliminating redundancies, or reducing the end strength of the force.

This form of change appears in both top-down and bottom-up fashions. Consider the efforts to realign and reduce the DoD's overseas force posture following the Cold War. As a combination of desires to reduce the costly presence of large forces posted overseas and address the lessons learned of late-1990s operations in the Balkans, the DoD (Department of Defense) returned some forces in the continental United States while ensuring the remaining overseas forces were more globally employable. It was top-down in the sense that DoD needed to reduce overseas force posture to redirect funding toward higher priorities, but it was

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[9] Bernard D. Rostker and K. C. Yeh. *I Want You!: The Evolution of the All-Volunteer Force* (Santa Monica, CA: RAND Corporation, 2006).

[10] *Jointness* is a colloquial term, not specifically defined but understood to mean a strong sense of interdependence and interoperability among the services. For example, Bernard D. Rostker, "Transformation and the Unfinished Business of Jointness: Lessons for the Army from the Persian Gulf, Kosovo, and Afghanistan," in Lynn E. Davis and Jeremy Shapiro (eds.), *The U.S. Army and the New National Security Strategy* (Santa Monica, CA: Rand Corporation, 2003) and Robert H. Scales, Jr., *Yellow Smoke: The Future of Land Warfare for America's Military* (Rowman & Littlefield, 2005), 164-165.

[11] Huber, "Understanding and Predicting," 223.

also bottom-up in that the overseas commands took on significant responsibilities for developing the force realignment plans, which included reorganizing and restationing some units.[12]

All change efforts impact the force and therefore people. Thus, defense managers must be sensitive to the potential fallout from change. The military could lose quality personnel, both military and civilian, or unwittingly introduce vulnerabilities or capability gaps. There will also be resistance to change. For example, DoD's internal right-sizing efforts in the mid-2000s presumed that the defense hierarchy was too top-heavy with too many vertical layers, thereby causing inefficiencies in decision-making. As part of the effort, DoD tried to eliminate service component commands and imposed a 15% cut from headquarters strength across the joint force. However, achieving these outcomes proved exceedingly difficult to do with the high OPTEMPO (operating tempo) in the Pentagon at the time, a growing insurgency in Iraq, and great uncertainty about how to eliminate bureaucratic tasks that external stakeholders demanded.[13]

Change invokes different responses, ranging from embracing to ambivalent to hostile. Defense managers serve on the front lines of the controversy, both in making sense of the effort and in communicating with external stakeholders and internally to service members, civilians, families, and other audiences.

Assessing On-Going Change

Defense managers are less likely to initiate change than they will find themselves joining change efforts already underway. They will be inserted into the middle of the effort, undertaking responsibilities for moving along a transformation they did not initiate nor see completed during their tour. Thus, they will also have to hand the effort off to someone else.

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[12] Stacie Pettyjohn, *U.S. Global Defense Posture, 1783-2011* (Santa Monica, CA: RAND Corporation, 2012), 83-96.

[13] Burwell B. Bell and Thomas P. Galvin, "In Defense of Service Component Commands," *Joint Force Quarterly* 37 (2nd Quarter 2005): 96-104. This article expressed concerns over the elimination of service component commands in the US.

Defense managers taking over in the middle of a change effort often lack adequate time to fully understand and appreciate everything that has happened to that point. Stories abound of War College graduates having to spend their first days in the Pentagon immediately having to defend their program or fight off forces wielding budget axes. No doubt, these adversaries were standing by waiting for the predecessor to leave so they could exploit the opportunity!

But just because one is inheriting an ongoing change effort does not mean it needs to continue. A legitimate question to ask is whether it is progressing as intended, and if not, consider whether it should be altered or canceled. Finding the answer is harder than it sounds. Military scholar Zhivan J. Alach notes three factors that defense managers might consider. One is to what extent has the threat or the situation changed that originally justified the effort? The change might no longer be needed or is now overcome by events. The second factor is the organizational culture of the entities within the Pentagon, which is notably risk-intolerant and desiring clear cost-effective solutions, all the while having to grow to meet the increasing demands of accountability from external stakeholders. It is also generally not amenable to outright cancellation of flagging change efforts. The third is technology which, while rapidly changing, may not be advancing commensurate with the military's desires.[14]

Defense managers need to assess the objective state of the change efforts they are chartered to manage. What was the condition or threat that the project seeks to address and is it still valid? What are the cultural barriers within or external to the change effort? Is the effort reaching too far, expecting developments or capabilities that simply do not exist? Questions such as these need to be asked continuously, as the change effort and the environment will evolve.

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[14] Zhivan J. Alach, *Slowing Military Change* (Carlisle, PA: U.S. Army War College, Strategic Studies Institute, 2008).

Working in Teams

Most BDF activities are done collaboratively through teams. Teams at these levels are often global, involving subject matter experts sharing functional or geographic responsibilities. Teams come in many forms and exist for many reasons but tend to fall along a continuum from enduring *communities of practice* to project teams assembled for specific purposes.[15]

Examples of communities of practice include the communications community under the Defense Information System Agency and Joint Staff J-6 that manages the Global Information Grid or the array of Asia-Pacific experts from OSD-Policy, Joint Staff J5, U.S. Pacific Command and its service component commands, and the service staffs. These share information, plan, coordinate, and respond to crises rapidly, and with today's global technologies can bring in specialized talent from across the government to handle novel issues. The energy generated by these communities of practice fuels the engines of the defense enterprise—articulating the requirements of the field that are translated into needed capabilities, plans, programs, platforms, and systems placed in the hands of Soldiers, Sailors, Airmen, and Marines. However, this same energy can produce a lot of tension within the team due to the different priorities, goals, and perspectives of the communities represented. The challenge for defense managers is mitigating such tensions and preventing conflict that may arise so teams can develop solutions.

Project or cross-functional teams may form out of a community of practice for a specific functional project or may be built entirely *ad hoc* based on an emergent issue that requires immediate Departmental response. Such teams need not be exclusively military personnel, nor need their workspace be confined to the Pentagon. An example of this was the establishment of the Army IED (Improvised Explosive Device) Task Force formed in response to the growing IED threat in Iraq in 2003. Commissioned by the Army G3 at the time, the Task Force

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[15] Étienne Wenger, "A Social Theory of Learning," in *Contemporary Theories of Learning*, ed. Kurt Illeris (New York: Routledge, 2009).

included special operations personnel, contractors, and a "small, hand-picked cadre of officers" who headed to Iraq to "make creative recommendations on adjustments to tactics, techniques, and procedures (TTPs) employed by operating forces."[16] Unlike many project teams that disband upon completion of their original tasks, the Army IED Task Force of 2003 would eventually grow into a separate joint organization in 2006 called the Joint Improvised Explosive Device Defeat Organization (JIEDDO), which helped shape viable responses to IEDs.[17]

Cutting Through Complexity

Standing at the crossroads between the vertical hierarchy with its formal business practices and the horizontal networks with their high-energy information sharing and innovation can be delicate work. Sometimes the dynamic and complex nature of the modern security environment is overwhelming, inhibiting a defense manager's ability to foster change and lead teams toward a better future. In "The Complexity Trap," Gallagher, Geltzer, and v. Gorka showed that complexity has always been present even in the supposed bipolar world of the Cold War.[18] They warned that "succumbing to complexity does not tell us how to react; indeed, if anything, it dissuades us from reacting at all, out of fear that we cannot possibly know what to do."[19]

Stakeholders often lack the patience or desire to deal with the complexity of many modern military issues and look to senior leaders to reduce them to simple, digestible sound bites. An example of this can be found in Congressional testimony, where leaders serving as witnesses must answer complex questions and engage with each Member of the committee within a prescribed

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[16] William G. Adamson, *An Asymmetric Threat Invokes Strategic Leader Initiative: The Joint Improvised Explosive Device Defeat Organization*, Student Research Paper (Washington, DC: Industrial College of the Armed Forces, 2007).

[17] For a detailed history, see Brad Martin, et al., *Assessment of Joint Improvised Explosive Device Defeat Organization (JIEDDO) Training Activity* (Santa Monica, CA: RAND, 2013), https://www.rand.org/content/dam/rand/pubs/research_reports/RR400/RR421/RAND_RR421.pdf (retrieved December 19, 2017). In 2015, JIEDDO became the Joint Improvised-Threat Defeat Organization (JIDO) under the Defense Threat Reduction Agency (DTRA).

[18] Michael J. Gallagher, Joshua A. Geltzer, and Sebastian L. v. Gorka, "The Complexity Trap," *Parameters* 42, no. 1 (Spring 2012): 5-16.

[19] Gallagher, et al., "The Complexity Trap."

timeframe. There is insufficient time to discuss issues in requisite depth, so simplicity and clarity are key to presenting the message.

In general, senior leaders cut through complexity in three ways. First, to the maximum extent possible, they situate themselves to gather as much first-hand information as possible. In other words, putting "eyes on target." Second, they clarify the tensions and challenges associated with the problem. This may not result in its simplification but in presenting the essential elements of the problem that must be resolved. Third, they clearly express a path forward that allows the organization to overcome or circumvent the tensions, find a synthesis, and implement the solution in ways that maximize the chance of success.[20]

Corollary: Differentiating Levels of Analysis

Cutting through the complexity also means mastering levels of analysis. It is not unusual, for example, for a defense manager to receive criticism for an enterprise program when one or two individuals were severely disadvantaged in some way. Of course, it is impossible for any enterprise program designed for the needs of a 3-million-person defense enterprise to run perfectly all the time, so such unfortunate cases are to be expected. Good defense managers do not write off or ignore such problems. In complex matters, what is ignored tends to grow and fester into greater problems. But naturally, defense managers cannot react to everything that goes wrong, so what should they do?

It is important for defense managers to understand how enterprise actions affect the military at three different levels of analysis—the macro-level of the military *institution* and its interface with society, the meso-level of *units* from small-unit to service component command, and the micro-level of the *individual*.[21] Even though an issue is being discussed among senior military leaders, for example, does not necessarily mean

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[20] Tom Galvin, *Responsible Command: Primer for Senior Leaders*, 1st ed. (Carlisle, PA: Department of Command, Leadership, and Management, 2020), 62-67.

[21] David R. Schwandt, "Individual and Collective Coevolution: Leadership as Emergent Social Structuring," in *Complexity Leadership Part I: Conceptual Foundations*, eds. Mary Uhl-Bien and Russ Marion (Charlotte, NC: Information Age Publishing, 2008).

that they are taking a macro-perspective. For example, an Army decision to introduce a new bonus program as a means of recruiting certain skill sets might be a response geared at the individual level of analysis. If too many volunteers suddenly pursue the new program (including those who would otherwise have volunteered anyhow), effects will be felt across the Army budget. Another example is a debate over cutting quantities of a weapons system being purchased from X-thousand to Y-hundred which may impact the force modernization plan with its long lists of units needing those systems.

Successful senior leaders understand how changes at one level of analysis will bring about second-order effects across the other levels. They also understand that providing simple answers at one level requires assumptions and controls being placed on the other levels, lest the answers be unreliable. By seeking to bring any discussion to a common perspective, defense managers increase the chances of clear and effective communication, negotiation, or problem resolution.

Communicating with Courage

The most important and sometimes most difficult role senior leaders play is in helping sustain an open communications environment, where the members are unafraid to "speak truth to power."[22] However, this is not just about confronting poor decisions or blowing the whistle when encountering fraud, waste, or abuse. It also ensures that the enterprise sustains its moral compass and places the needs of the service members more than anything else, including the needs of external stakeholders.

Consider why the defense enterprise is a bureaucracy in the first place – to address the extraordinary and dynamic needs of service members and stakeholders as efficiently as possible so commanders can concentrate on getting their units prepared for war. The problem is that bureaucracies can become rigid over

[22] Based on the phrase "Speak truth to power," from Stephen G. Cary et al., *Speak Truth to Power: A Quaker Search for an Alternative to Violence* (Philadelphia, PA: American Friends Service Committee, 1955). The pamphlet notes that the title derives from an 18th-century charge to Quakers.

time, driving defense managers to follow the given process blindly when the process needs an overhaul or situations that demand workarounds or exceptions. But the bureaucracy can be intimidating. Saying 'no' and refusing to engage in dialogue are easy and quick responses. Communicating with courage means being persistent and driving the necessary dialogue to raise ideas, spark innovation, and keep the enterprise effective and relevant.

Being a "Player," Not a "Spectator"[23]

Success as a defense manager means demonstrating the willingness to get involved and not merely standing on the sidelines watching. Major General (MG) (Retired) Perry Smith said that senior leaders "should view themselves as much more than people who answer the mail and solve the problems."[24] He noted that flag officers and top civilians are often very busy with their own responsibilities and demands on their time, and they have less ability to provide the same detailed guidance to their subordinates than they did as tactical commanders. Hence it falls upon senior leaders to exercise the necessary initiative to make things happen.[25]

In his book *Assignment: Pentagon,* MG Smith told a vignette about speaking truth to power and being a player. This vignette is excerpted below:

> *I was sitting in the briefing room of the three-star <service-level official> [who] was debriefing [the staff on a meeting]. <Name> had just articulated his view on how the military ought to be restructured throughout the world. He wanted, for instance, a Northeast Asia Unified Command … a Southwest Pacific Unified Command …, and a Specified Naval Command*

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[23] This phrase – being a "player" and not a "spectator" -- has been used for many years in the context of the U.S. Army War College's Defense Management course and its predecessors. For example, it is used in Michael V. McCrea, *Defense Management and Business Transformation*, Faculty Paper (Carlisle, PA: U.S. Army War College, Department of Command, Leadership, and Management, 2013), 10.

[24] Perry M. Smith, *Assignment: Pentagon – How to Excel in a Bureaucracy*, revised 3rd ed. (Dulles, VA: Brassey's, 2002), 91.

[25] Smith, *Assignment: Pentagon*, 90.

in Hawaii. After his monologue on this subject, he asked if anyone in the room had any objection to his grand design.

There were a number of people in the room who were not comfortable with some of his ideas, but since he was expressing them with such conviction, none of my colleagues spoke up. … I felt somebody ought to speak up. So I held up my hand and said that I thought that some changes were needed but that some of his ideas would be bad for the Air Force and for the nation. …

The next day, I was assigned as team chief for an ad hoc group that was to put together an Air Force position on a revised Unified Command Plan …. Over the course of the next few months, I learned much more about the intricacies of the U.S. military command structure throughout the world.[26]

Smith spoke truth to power and exercised initiative in an environment that encouraged it. In doing so, he was rewarded with an opportunity to shape a Service's position that would guide how that Service would support our national security interests in the coming years and gain important insights and experience that he would parlay into future responsibilities.

However, sometimes the "power" referred to is one's own. The problem is typically not in terms of outright ethical breaches, where rules were broken or lies exposed. It is in the gray areas where senior leaders must navigate the complexity and intensity of bureaucratic battles, the high stakes involved with defense programs, the politicized nature of many national security matters, and the occasional ruthlessness of the budget axe. These can present senior leaders with difficult ethical dilemmas when, as Smith said, "If the goals you and your service are pursuing are good and honest ones, you may feel the pressure to lie as a means to carry out those goals."[27] The lies may not be outright untruths,

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[26] Smith, *Assignment: Pentagon,* 91-92.
[27] Smith, *Assignment: Pentagon*, 198.

but of omission or "spin" where rationally articulating a position gives way to unwarranted advocacy.

These challenges do not deter senior leaders from exercising initiative. Through self-awareness and continuous critical and reflective thinking, senior leaders learn to recognize the ethical boundaries on such issues. They are both adept at avoiding crossing them and at coaching, teaching, and mentoring others on recognizing them.

Conclusion

Serving as a defense manager is both challenging and rewarding. The best defense managers rise above their formal duty descriptions and seek out opportunities to make their militaries stronger and more effective. They carve out a niche that leverages their experience and expertise in ways that benefit the overall institution and, most importantly, help it accomplish its ultimate purpose—to provide trained and ready forces to the combatant commanders.

3. Force Structure

Tom Galvin & Bob Bradford

Force structure decisions govern what capabilities the military is supposed to have on hand physically, how those capabilities are organized, and where they are postured to best serve national military objectives. One can view it as an optimization problem, as few nations can afford to build a large and robust enough force that covers the entire range of security challenges they might face, nor do they normally have adequate resources, facilities, infrastructure, and real estate to train, employ, and sustain all of it on active service. In a dynamic security environment, leaders must continuously assess and realign the force structure to meet current and emergent needs.

Changing the force structure is normally a slow process. If the security environment requires that a nation grow its force by one to ten thousand soldiers or more, there must be units to receive, on-board and equip them, training ranges available for them to prepare, units for them to join, and bases for them to be stationed, and power projection capacity to employ them. Downsizing or transforming a force is similarly constrained as soldiers must either retrain for new skills or leave the service, units must be stood down or swapped for those of another kind, and there must be places to manage the divestment of excess equipment and facilities, all while trying to ensure the remaining force maintains readiness and relevancy.

Changing the force structure can also be expensive in time and money. Even when replacing a weapon system with an upgrade or similar capability, existing facilities may be inadequate to house and sustain the new system. Construction, especially with the ever-increasing demands for information technology, is very expensive. Other challenges include physical and operational security, environmental impacts, power grid, and other commercial infrastructure access. The days when national governments could simply designate patches of ground as military bases and rapidly build functioning garrisons upon them are in the past.

Force structure decisions should be governed by national military strategy documents, from which planners determine what kinds of units are needed and therefore how to build them and where they should be stationed. However, the time lag between strategy development and execution is too great, resulting in decision environments where several factors of the force structure work somewhat independently. For example, the services might not wish to wait for firm decisions on roles and missions before deciding to build new capabilities. The souring of host nation relations or encroachment problems may render an important base unusable and capabilities must be restationed elsewhere before there is time to assess the impacts on readiness. New capabilities, e.g. cyber and space, may need to be developed immediately in the absence of a firm idea of what purpose they will serve. Finally, costs over time potentially constrain any decision that would be made.

And the enemy gets a vote! The right force structure today may not be the right force structure next year, or maybe even next week. Adversaries are continuously adapting their force posture to counteract friendly movements.

Therefore, defense managers cannot be linear thinkers. While there is value in trying to drive an engineered solution from strategy to capabilities, it rarely translates directly into practice. The environment is too complex to allow it. However, engineering does have value in helping express vision and strategic direction for the enterprise to develop the right force and drive other decisions.

Two Perspectives

Force structure decisions are complex. One reason is that they involve multiple complex problems that are interdependent on one another. Summarizing Owens (2015), the strategic logic of force planning involves determining the requirements of the force, developing concepts to describe how the force must fight, how many forces are needed to win the fight, and ultimately programming the numbers and types of capabilities required so

to request the right resources.[1] Each of these constitutes different contested decision spaces, some with different stakeholders. For example, armies tend to view the size of the force in terms of the number of service members whereas navies and air forces view the sizes in numbers of platforms (i.e., ships and airframes). This impacts how the services measure themselves in terms of capacity, legitimacy, and relevance and therefore how they communicate their requirements to stakeholders.[2]

The second reason is that not all stakeholders (external and internal) look at force planning the same way. For example, the US implementation of the strategic choices framework (see Chapter 1) exercises a programming and budgeting perspective in which force structure is viewed primarily as the size of the military force. This allows for ready calculation of the funding needed when the overall end strengths, rank structures, or service member benefits change.[3] Linick (2022) shows that this interpretation of the framework omits consideration of *force posture* that encompasses stationing, facilities, infrastructure, and readiness. The placement of forces impacts the security environment, such as how forward presence can provide increased deterrence or responsiveness to crises but may be more costly to maintain.[4] This reflects a more comprehensive *organizational design* perspective that considers all aspects of the capabilities an organization needs, both insourced and outsourced, the resources required to develop and maintain them, and where and how to place the capabilities. It is also independent

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[1] Mackubin Thomas Owens, "Force Planning: The Crossroads of Strategy and the Political Process," *Orbis* 59, no. 3 (2015): 411-437.

[2] Carl H. Builder, *The Masks of War* (Johns Hopkins University Press, 1989), 20-28.

[3] In the US example, this perspective aligns with the way the titles normally comprising the annual National Defense Appropriations Act are constructed. The Military Personnel title is driven by the services' end strengths while platforms are covered under the Procurement, RDT&E (Research, Development, Testing, & Evaluation), and Other Defense Program titles. Civilian personnel costs are covered in the Operations & Maintenance title.

[4] Michael Linick, "Strategic Choices in Defense Force Structure," in *Resourcing the National Security Enterprise*, eds. Susan Bryant and Mark Troutman, (Amherst, NY: Cambria, 2022), 133-150. In the US system, force posture is part of the Operations & Maintenance title except for military construction which is a different appropriation entirely.

of any particular political system.[5] Hereafter, this chapter takes the organizational design view.

Figure 3 depicts the five major activities that create the *force as designed* that will be employed to support the strategy. Ideally, the force as designed matches the strategy. But in the real world, the current state of the force structure depends on how the five activities interact. They are shown in the diagram as sequential based on organizational design principles representing how a military staff might design the force from scratch given a strategy, a blank sheet of paper, and an engineering mindset. In truth, militaries rarely start from scratch, and so the coherent logic is constrained by the current state. The double arrows in the graphic represent the reality that the start point can be anywhere and any decision made in one activity impacts or constrains the others.

Figure 3 also shows the relationship between force structure and the other two major elements of the strategic choices framework – modernization and readiness. Modernization addresses those elements of the force design that require capabilities—personnel, materiel, or other—not already organic to the force. It closes the gap between the force as designed and the force demanded by the strategy. Readiness measures how well the force on hand fulfills the force as designed, under the assumption that the design is right and satisfies the strategy. Thus, if the force as designed is understrength by 20% of its personnel, then that would be considered a readiness problem. On the other hand, if the force as designed has every position filled by a trained person but is comprised of the wrong types of capabilities to confront an emerging threat, that is a problem that the enterprise must address through some sort of force structure change.

Each of these five interdependent activities has potentially different stakeholders, leading to conflicts and tensions between decisions. City leaders interested in maintaining local jobs will be far more interested in decisions about stationing the force than in

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[5] Naomi Stanford, *Guide to Organization Design: Creating High-performing and Adaptable Enterprises* (PublicAffairs, 2015).

the division of roles and missions or the overall sizing of the force, for example. This is why the arrows within the center bubble of Figure 3 are bi-directional. In a perfect world, Owens' (2015) force planning would be implemented as a sequence of activities. However, in practice, they are concurrent and overlapping with each acting on its own schedule, timelines, and stakeholder interests, and therefore the corresponding decision spaces may be distributed across the enterprise. The result could include stovepiping of activities, poor assumptions, and ill-informed decisions.

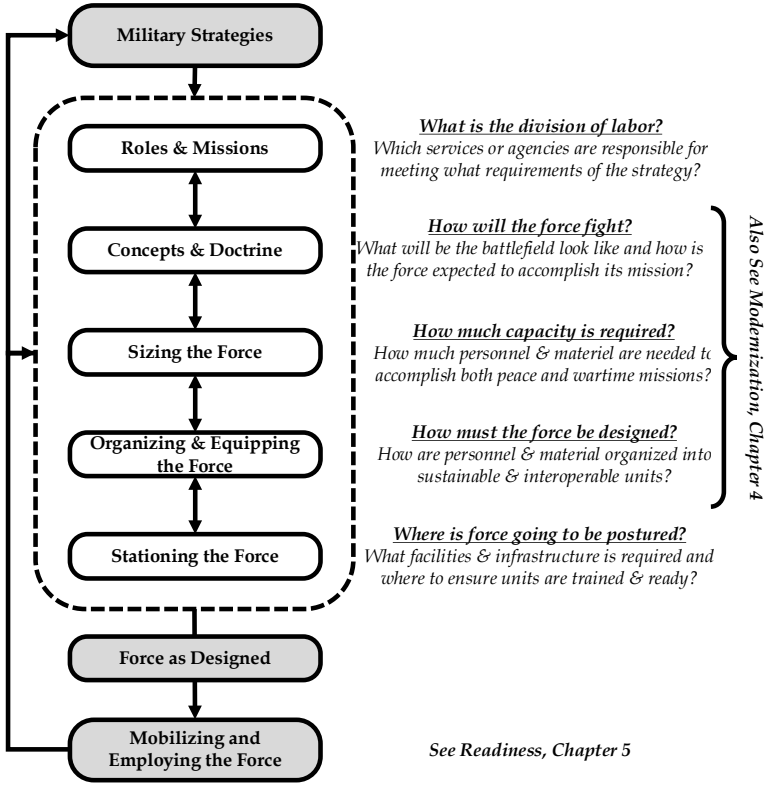

Figure 3. Framework for force structure decisions[6]

[6] Original graphic by authors.

Roles & Missions

Roles and missions decisions are as vitally important as they are infrequent. Many military forces divide their services along warfighting domains neatly, such as assigning land responsibilities to an army, maritime to a navy, and aerospace to an air force. While such divisions of responsibilities may be stable, there are overlaps and intersections requiring resolution. Who owns riverine or amphibious operations – the army, the navy, or someone else (like the Marine Corps)? What about newer domains such as cyber – should that be assigned to an existing service or should the enterprise create a new one? What about divided responsibilities within a domain, such as the distinction in the U.S. between its Navy and Coast Guard, or the U.S. Air Force and Space Force?[7] Or, what responsibilities are assigned among active and reserve components, or conventional and special forces?

At the enterprise level, roles and mission discussions stabilize relationships with national stakeholders, such as secretaries/ministers and legislators. Services and agencies given responsibilities for particular missions become accountable, therefore having to report on the readiness of current capabilities or investment requirements and submitting programming and budgeting actions to request needed resources. Stakeholders may require the defense enterprise to conduct formal roles and missions reviews and codify the divisions of labor in written reports, such as has occasionally been done in the U.S.[8]

But roles and missions debates and decisions are not confined to the enterprise level. Rather, they occur at echelon. Each service or agency must further subdivide its assigned roles and missions to subordinate elements or commands. These may be deliberate discrete decisions, such as the creation of a cyber branch, or the

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[7] Rachel S. Cohen, "Time to Rethink Roles and Missions?" *Air & Space Forces Magazine*, online edition, September 1, 2020, https://www.airandspaceforces.com/article/time-to-rethink-roles-and-missions/.

[8] For example, Department of Defense, *Quarterly Roles and Missions Report* (Washington, DC: Department of Defense, January 2009), https://apps.dtic.mil/sti/tr/pdf/ADA493403.pdf.

accumulation of historical changes in military organizations such as how the US Army's armor branch transitioned over time from horse cavalry to tanks or how joint and service major commands evolved over time.[9] Services may also divide responsibilities in other ways, such as among components (active and reserve), between conventional and special force elements, or geographically (home station vs. overseas or aligned against different theater commands). These domains of responsibilities may be further subdivided down to unit or team level. For example, an army engineer branch might establish separate combat engineer and civil engineer capabilities to be further divided into units and distributed. Combat engineer units assigned as direct support to divisions or brigades may differ from those performing general support to corps or theaters. Likewise, intelligence branches may create separate human intelligence, signals intelligence, and electronic warfare units. The resulting divisions of labor lead to the creation and sustainment of military occupational specialties and respective certification requirements which become important information for decisions about concepts, sizing, organizing, and stationing the force.

Three general principles are helpful when establishing roles and missions. The first is *clarity*. National security strategies generally express missions and requirements at a high, abstract level without obvious paths to delineation among the services. Moreover, new strategies often introduce new terms and ideas or redefine old terms.[10] Roles and missions decisions should translate the abstract into the concrete and be operationalized into action by services and agencies. Ambiguity should be minimized and proponency clearly assigned to ensure responsibilities and accountability for designing and developing capabilities.

The second is *coordination.* In large, bureaucratic organizations, redundancy is often viewed negatively, but it is

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[9] Kristin Behfar and Dale Watson, "Leading Large Bureaucratic Organizations: The Internal Environment," in Thomas P. Galvin and Dale Watson (eds.), *Strategic Leadership: Primer for Senior Leaders*, 4th ed. (Carlisle, PA: Department of Command, Leadership, and Management, 2019), 28.

[10] Richard M. Meinhart, *Strategic Planning by the Chairmen, Joint Chiefs of Staff, 1990-2005* (Carlisle, PA: Strategic Studies Institute, 2006).

virtually impossible to divide the work without some degree of overlapping responsibilities or gaps. The above examples of cross-domain missions illustrate this. Roles and missions decisions must also include the mechanisms, protocols, or norms for coordinating joint solutions to these challenges.

The third is *acceptance*. Not all divisions of labor will be welcome, such as when services are assigned missions they do not want or consider to be distractions from their core competencies. For example, some militaries have a gendarmerie that serves law enforcement functions while others do not. Those who do not may be asked to perform some form of limited law enforcement functions as part of their duties in accordance with national laws, but this may create tensions among the military, other national agencies, and external stakeholders. Thus, roles and missions may involve negotiated solutions to ensure all requirements of the strategy are met while assuaging any concerns of the military.

Concepts and Doctrine

Concepts and doctrine are two terms that military professionals can easily confuse. The difference is that *doctrine* provides definitions, principles, tactics, techniques, procedures, and measures of performance and effectiveness for accomplishing military tasks, while *concepts* are "ideas for significant change" that warrant further investigation and development.[11] Concepts may describe novel operational environments; novel ways of conducting war, campaigns, or battles; or novel capabilities required and how they might be employed.[12] The defense enterprise establishes processes and systems for developing concepts; assessing them through experiments, wargames, or other trials; and operationalizing them in the forms of new

[11] U.S. Department of the Army, *Doctrine Primer*, Army Doctrinal Publication (ADP) 1-01 (Washington, DC: Department of the Army, 2019), paragraph 2-25. Hereafter *ADP 1-01*.

[12] *ADP 1-01*, para 2-26.

doctrine and new capabilities.[13] Concepts and doctrine are living documents and should be constantly subject to review.[14]

Developing concepts and doctrine involves many of the same competencies often ascribed to strategic leaders. These include but are not limited to: (a) systems thinking and understanding, (b) envisioning the future, (c) problem management, and (d) consensus building.[15] Together these competencies help leaders anticipate future needs and set the enterprise in motion toward fulfilling those needs over time.

The ability to analyze and understand the future is critical for developing useful concepts and doctrine. There are two skills involved. The first skill projects the current reality to the future, in other words, *forecasting*. This is the synthesis of systems thinking and understanding applied to a predetermined time frame, whether a day, week, or decades into the future. *What are the possible outcomes of the present situation applied to that time? Which are most likely? Most dangerous?* At the enterprise level, envisioning involves a deeper understanding of the theories underpinning military science and operational art due to the increased prevalence of CAS and competing motivations of actors in the strategic environment.[16] The range of possible outcomes is too great, so the use of forecasting tools helps filter out those factors most salient to the decisions at hand for the enterprise.[17]

The other, vital to developing concepts, is *envisioning the future*. Concepts describe the forecasted situation and propose possible solutions to drive change in the enterprise. Leaders then communicate, through the concept, an idealized picture of what their organizations should strive toward to confront future threats

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[13] Joint Chiefs of Staff, *Joint Doctrine Development Process*, Chairman of the Joint Chiefs of Staff Manual 5120.01B (Washington, DC: Joint Chiefs of Staff, 2020), Enclosures A&B. Hereafter *CJCSM 5120.01B*.

[14] *ADP 1-01*, v; *CJCSM 5120.01B*, B-27.

[15] Douglas E. Waters, "Senior Leader Competencies," in Tom Galvin and Dale Watson (eds.), *Strategic Leadership Primer*, 4th ed. (Carlisle, PA: Department of Command, Leadership, and Management, 2019).

[16] Waters, "Senior Leader Competencies," 63.

[17] Jay Ogilvy and Peter Schwarz, *Plotting Your Scenarios* (Emeryville, CA: Global Business Network, 1998).

and risks.[18] This picture should represent something achievable – feasible, suitable, and acceptable with due consideration to risk.[19]

Sizing the Force

One may be surprised to see sizing the force and organizing the force as separate activities in Figure 3. Although for some militaries, these decisions may be closely coupled, for others they are not. One reason for de-coupling is when *end strength* – the total number of service members that the military is legally allowed to have on hand -- plays a major role in political decisions regarding how large a force the nation can afford. It sets constraints for how militaries subsequently organize themselves to satisfy roles, missions, concepts, and doctrine. A strategy may call for a force of 10,000 active. The concept may support that number. But if the nation decides that the military will only have an end strength of 8,000, that will impact all the other decisions to include the strategy!

End strength is the size of the force as designed – meaning the number of spaces rather than faces. If the end strength is established at 10,000, sizing decisions then subdivide it by specialty or skill. For example, an army of 10,000 spaces could be divided into 4,000 infantry, 1,000 artillery, 1,000 aviation, and 4,000 combat support. The levels of actual personnel fill against those designed numbers (the *faces*) may vary but should always be very close to the number of spaces. Leaders must also consider how many spaces go to the active force and how many to the reserves, or how many are uniformed military versus defense civilians or contractors. Ideally, the allocation of spaces should align with the concepts and doctrine, and in turn the roles and missions. However, in practice, the numbers may not match up perfectly, and any gaps constitute risk.

End strength is not the only sizing consideration. As Carl Builder shows in his famous essay on service cultures, each

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[18] Silas Martinez and Thomas P. Galvin, "Leadership at the Strategic Level," in Thomas P. Galvin and Dale E. Watson (eds.), *Strategic Leadership: Primer for Senior Leaders*, 4th ed. (Carlisle, PA: Department of Command, Leadership, and Management, 2019), 9.

[19] Waters, "Senior Leader Competencies," 63-64.

service measures its size and strength based on a single or small set of figures.[20] Armies tend to measure themselves in end strength, but for navies and air forces, it is typically quantities of platforms (i.e., ships or aircraft). The numbers of platforms (which would seem to indicate a particular organizing construct) may be referred to via an aggregate raw number – such as a "50-ship Navy," rather than a "10-cutter plus 10-cruiser plus 30-patrol boat Navy." In this sense, a navy of sixty patrol boats might be viewed as bigger than a 20-cutter navy, even though cutters are generally larger and more capable ships.

The tangible nature of raw numbers can invite stakeholders and enterprise leaders to use them as a point of entry into force structure decisions. For example, critics of the 2023 National Defense Appropriations Act focused on the end strength numbers as a by-product of recruiting issues rather than as an outcome of changes in roles and missions or concepts and doctrine.[21] The concern is how the drop in end strength alone may affect a nation's capacity to demonstrate will and resolve, attract allies and partners, provide leverage for diplomacy, and deter or dissuade adversaries. Thus, independent of assigned roles and missions or the requirements of concepts and doctrine, these were calls for maintaining larger forces.[22] On the other hand, fears that a military may be too big, particularly following wars or periods of heightened tensions like the protracted Cold War, may make end strengths a target amid calls for "peace dividends." These may go too far due to national assumptions about how much defense will be provided by others or overstating the risk reduction, such as assuming that no new wars will emerge.[23] Unfortunately, the

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[20] Builder, *The Masks of War*, 20-22. Also see Chapter 8.

[21] For example, Thomas Spoehr, "The incredible shrinking Army: NDAA end strength levels are a mistake," *Breaking Defense*, December 20, 2022, https://breakingdefense.com/2022/12/the-incredible-shrinking-army-ndaa-end-strength-levels-are-a-mistake/; Nora Bensahel and David Barno, "Addressing the U.S. military recruiting crisis," *War on the Rocks*, March 10, 2023, https://warontherocks.com/2023/03/addressing-the-u-s-military-recruiting-crisis/.

[22] For example, William Inboden, "10 reasons US military strength remains essential," *The Hill*, December 23, 2018, https://thehill.com/opinion/national-security/421970-10-reasons-us-military-strength-remains-essential/.

[23] William T. Johnsen, *NATO Strategy in the 1990s: Reaping the Peace Divided or the Whirlwind?* (Carlisle, PA: Strategic Studies Institute, 1995), 17-19.

Cold War's end saw the rise of several conflicts including those associated with the breakup of Yugoslavia. This reinforces the idea that end strengths carry legitimacy all their own and changes in end strength levels send powerful signals to others regarding changes in attitudes toward defense.

Organizing & Equipping the Force

Organizing the force involves arranging the end strength and platforms into units, along with the various commands, headquarters, or staff needed to mobilize, employ, sustain, and administrate them. Combat units are generally the simpler cases and are typically the forces that stakeholders are most interested in. They tend to be organized around specific weapons systems (e.g., tanks, mechanized vehicles, cargo vehicles) or platforms (e.g., ships, airframes). Doctrine establishes how many systems are required at unit level along with staffing and crew requirements. Therefore, the organizational designs become templates. Each light infantry battalion is structured the same as all the others, as are each armor and mechanized infantry battalion, and so on. Common combat support and service support units should also be standardized to the maximum extent possible, such as corps or divisional signal, intelligence, and sustainment units or aerospace or maritime base operations.[24] These templates are encoded in force structure documents such that it is straightforward to implement changes. For example, a change in the organizational design of a standard combat unit may trigger the enterprise to: (1) allocate (or redistribute) on-hand equipment across light infantry units, (2) procure new equipment or systems now added to the structure, and/or (3) identify excess equipment for turn-in or divestment.[25] Because such moves potentially require programming, leaders may have to prioritize these actions or spread them out over time.

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[24] Congressional Budget Office, *The U.S. Military's Force Structure: A Primer* (Washington, DC: Congressional Budget Office, 2016).

[25] For a US example, see George Polovchik and Fred Gellert, "Force Management," in *How the Army runs: A senior leader reference guide*, 2021-2022 edition, ed. Lou Yuengert (Carlisle, PA: Department of Command, Leadership, and Management, 2023), 3-20 to 3-24.

Non-combat units and headquarters are generally not templated and often cannot be standardized. This induces challenges and tensions whenever structural changes are considered. Such units are challenging due to their context dependence or the uniqueness of their capabilities. An example of the former is the set of geographic combatant commands in the US and their respective service component commands. Because of the varying nature and intensity of security challenges in the region, these commands are organized differently despite sharing common missions. In 2016, a Government Accountability Office survey showed that US Southern Command headquarters had one thousand personnel while US European Command and US Pacific (now Indo-Pacific) had well over 1500 personnel. The joint task forces in each combat command also differ substantially.[26] The latter describes those one-of-a-kind specialized units like the US Army's 1st Information Operations Command or the 75th Ranger Regiment whose capabilities are generally not found elsewhere in the service (although other services may have comparable units). In both cases, the pooling of specialized knowledge and technical experts allows for efficient talent management.

However, specializations come at a cost. Staffing and equipping the enterprise's many institutional, administrative, and sustainment organizations often compete against operational units. Therefore, enterprise leaders occasionally try to curb the sizes of headquarters to increase lethality.[27] However, it is difficult to downsize or transform since they are dependent on unique skills and competencies of its personnel. This is evident when trying to merge headquarters together to reduce staff and gain efficiencies, as it may not be possible for individual members

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[26] John Pendleton, *Defense Headquarters: Geographic Combatant Commands Rely on Subordinate Commands for Mission Management and Execution*, Report #GAO-16-652R (Washington, DC: Government Accountability Office, 2016).

[27] For example, prior to the 9/11 attacks, Secretary of Defense Donald Rumsfeld was actively working on significant reductions of headquarters staffs. Jim Garamone, "Rumsfeld names Defense operations that could be outsourced," *Government Executive*, September 11, 2001, https://www.govexec.com/management/2001/09/rumsfeld-names-defense-operations-that-could-be-outsourced/9928/; Thomas Spoehr, "Change in order to stay 'Army strong,'" *Military Review Spotlight*, April 2014.

to effectively perform multiple roles while not reducing levels of service.

The result is that the force structure rarely, if ever, satisfies the aggregate requirements of the strategy. Various techniques are available to allocate spaces and equip authorizations to manage risk.[28] One is *overstructuring*, which is the creation of units or commands that are allocated fewer resources than called for in doctrine. Such organizations operate with reduced capacity in peacetime but are ready to expand to full capacity during a crisis. For example, an infantry battalion may only have two fully formed companies instead of three in peacetime but would be augmented with a third company when preparing for deployment. Or a combat support brigade may consist solely of a *cadre*--the command group and staff elements alone—postured to grow to a full brigade when needed. Overstructuring provides flexibility if not all units need to maintain full readiness. However, it tends to consume larger numbers of senior personnel to foster the mobilization, reception, and/or integration of forces joining the unit for deployment.

Outsourcing is another approach, available when capabilities can be acquired on demand from the reserve components, the private sector, or other means. This allows for the reallocation of spaces to functions that only militaries can perform.

Another method is *multi-hatting*, which is the assignment of multiple roles and missions to a single unit. This is done when there is little chance that those missions requiring the same capabilities would occur at the same time. It is also a way to cover low-priority roles and missions that the enterprise cannot avoid performing. For example, combat units must also be ready to perform peacekeeping missions. Because the skills and competencies differ between combat and peacekeeping, it is difficult for units to maintain equally high proficiency in both,

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[28] These techniques are elaborated in Thomas P. Galvin, *National Preparedness and Military Readiness: Primer for Senior Leaders*, 1st ed. (Carlisle, PA: Department of Command, Leadership, and Management, 2024), Chapter 6.

and therefore if neither mission can be resourced in full with separately allocated units, trade-offs are necessary.

Of course, the enterprise can attempt to re-engage with stakeholders on the roles and missions or the sizing of the force if the risks uncovered during organizing and equipping prove unacceptable.

Posturing the Force (Stationing)

Force posture is the arrangement of forces, footprints, and agreements representing both active stationing of forces and assets that are available to varying degrees if needed for mobilization and employment. *Forces* refers to the military organizations and capabilities themselves. *Footprints* refer to networks of real property, facilities, and infrastructure. *Agreements* include any relevant treaties, access arrangements, and other support that facilitate military presence in a particular location.[29] Force posture encompasses the entirety of a nation's forces, although for nations with forces stationed outside its borders, management policies, processes, and systems may differ between domestic and foreign locations.[30]

Stationing, the act of establishing the footprint and agreements to allow forces to occupy that footprint, comes in multiple forms. *Permanent stationing* is when such occupation is long-term, implying the presence of permanent, durable facilities or buildings. Units can also be *temporarily stationed*, such that they move to a new footprint for a limited period of time. Temporary stationing is often involved in rotations to a forward operating base for operations or training and usually includes temporary facilities that can be erected and torn down with less impact on the underlying real estate.

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[29] For example, U.S. Department of Defense, *Management of U.S. Global Defense Posture (GDP)*, DoD Instruction 3000.12 with Change 1 (Washington, DC: U.S. Department of Defense, 2017), https://www.esd.whs.mil/Portals/54/Documents/DD/issuances/dodi/300012p.pdf. (Hereafter *DoDI 3000.12 w/c1*).

[30] *DoDI 3000.12 w/c1*.

Footprints can also be of several types. They can be permanent, such that the government either owns the property or sustains an enduring agreement with a host government or private entity for its use. The U.S., for example, has agreements with Germany, Japan, South Korea, and other nations to allow the permanent stationing of forces there. The bases are known as *main operating bases* in DoD. Other footprints can be enduring in character and occupied persistently by forces (e.g., a *forward operating site* or "FOS") or only periodically occupied and retained primarily for use during mobilizations, surges, exercises, or other military activities (e.g., a *cooperative security location* or "CSL").[31]

Stationing decisions can involve balancing centralization for efficiency versus distribution for effectiveness and resiliency. Should one establish fewer, larger posts administered at reduced overhead and greater amenities and training capacity?[32] While these are more efficient, they can become large, high-value targets for adversaries. Distributing the force among smaller bases has the advantages of being more survivable against enemy action and having the greater opportunity to base forces in or nearer their initial place of employment.[33]

Finally, bases carry significant symbolic value. The presence of a base, especially outside one's territory or near a contested border region, demonstrates national resolve. It is an important tool for deterring war, assuring friends, and shaping the environment.[34]

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[31] Joint Chiefs of Staff, *Contingency Basing,* Joint Publication 4-04 (Washington, DC: Joint Chiefs of Staff, 2019), GL-4. These terms vary among the US services – for example, the term *forward operating base* (FOB) is still commonly used as an alternative to FOS.

[32] The former has been the justification for the conduct of base realignment and closures in the US. See "Welcome," Office of the Under Secretary of Defense for Acquisition & Sustainment Base Realignment and Closure (BRAC), https://www.acq.osd.mil/brac/.

[33] For more on real property, facilities, and infrastructure considerations, see Galvin, *National Preparedness and Military Readiness*, Section 10.D.

[34] Dave Shunk, Charles Hornick, and Dan Burkhart, "The Role of Forward Presence in U.S. Military Strategy," *Military Review* (July-August 2017), https://www.armyupress.army.mil/Journals/Military-Review/English-Edition-Archives/July-August-2017/Shunk-Forward-Presence/ .

Implications

Force structure decisions are complex as each of the five activities above are interrelated but respond to different stimuli. A new warfighting concept may drive decisions about how to modernize a force but at the same time impact how the current force is sized and organized. Soured relations with an international host may mean a vital base is at risk of closure or access becomes restricted, with implications for the force to fulfill its prescribed roles and missions. This may potentially require leaders to rearrange the footprint quickly and under duress. Budgetary pressures or recruiting difficulties may force end-strength reductions. However, because each of these activities has different stakeholders and may be subject to different processes and systems, the impact of such stimuli may not be felt across the enterprise to the same extent.

4. Modernization

Jeff Wilson & Lou Yuengert

In the Strategic Choices Framework introduced in Chapter 1, modernization is one of three main areas that senior Department of Defense (DOD) leaders must consider when making decisions about resourcing.

Meanings of Modernization and Related Terms

The term *modernization* has many meanings in this context. Congress defines it as research and development funding and activities that contribute to technology breakthroughs, and funding for the development, procurement, fielding, and sustainment of equipment and software used in major weapons systems. Most members of the U.S. national security community view modernization as pertaining to equipment procurement or upgrades. Funding for modernization is generally discussed in terms of procurement (PROC) and research, development, test, and evaluation (RDT&E) money.

A broader definition of *modernization*, "The process of starting to use the most recent methods, ideas, equipment, etc. so that something becomes or seems more modern,"[1] is more useful because it begins with methods and ideas before mentioning equipment. Thus, a better understanding of modernization pertains to operational *capabilities* and allows for the inclusion of methods and ideas and other capabilities not involving materiel. The first step in achieving effective modernization is to identify what capabilities the force will need to achieve the required objectives using the operational concepts of the services and the joint force. This process of *capabilities-based assessment* identifies capability gaps that need to be filled through modernization.

There are other terms commonly associated with modernization worth mentioning. *Transformation* is a form of

[1] Cambridge Dictionary, s.v. "Modernization," https://dictionary.cambridge.org/us/dictionary/english/modernization.

modernization where a service, agency, or community undergoes extensive changes, usually involving significant divestment of legacy capabilities and pursuing advanced capabilities that may not yet be under development. For example, the Army Transformation of the 2000s divested capabilities from the Cold War in favor of developing newer systems. Meanwhile, *innovation* is the process of creating and using or applying something new; often through new ideas, research, and experimentation; that could eventually be developed and produced at scale.[2]

Managing Modernization

As militaries are large and complex organizations, the process of modernizing them involves the simultaneous modernization of dozens, even hundreds of capabilities at once. Leaders at defense, joint, and service levels require decision support tools to help them prioritize individual modernization efforts, assess progress in the development and fielding of improved capabilities, and ensure the appropriate distribution of resources. The goal is to get these capabilities into the hands of soldiers as efficiently as possible. Therefore, defense leaders employ modernization strategies that provide overall strategic direction. Figure 4 shows an example of a service-level strategy, the Army Modernization Strategy Framework that connects "how we fight (concepts, doctrine, organizations, training)" and "who we are (leader development, talent management)" with "what we fight with (equipment)" as the "ways" in the ends-ways-means plan for the Army's transition to multi-domain operations (MDO).

Modernization strategies can be comprehensive, such as the above, or they can be focused on particular sets of capabilities. For example, the DOD has two such strategies focused on digitization – the DOD Digital Modernization Strategy and the DOD Software Modernization Strategy.[3] When a service or agency employs a

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[2] Cf. Cambridge Dictionary, "Transformation" and "Innovation." https://dictionary.cambridge.org.

[3] Department of Defense, *DoD Digital Modernization Strategy: DoD Information Resource Management Strategic Plan FY19-23* (Washington, DC: DOD, 2019); Department of Defense, *Department of Defense Software Modernization Strategy* (Washington, DC: DOD, November 2021).

suite of strategies, it must ensure consistency and nesting within existing national and defense strategies.

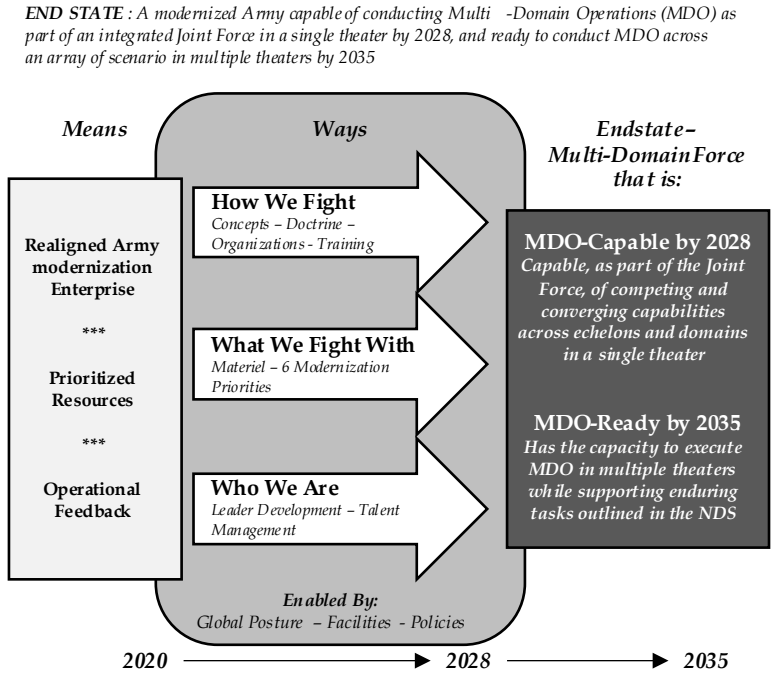

Figure 4. Army Modernization Strategy Framework[4]

Each individual capability is modernized through the use of a *capabilities development system*, providing defense leaders with the ability to document, review, and validate requirements and manage their development.[5] In the US, the Joint Capabilities Integration and Development System (JCIDS) performs this role. It specifies two types of major capabilities changes, those focused

[4] Adapted from Department of the Army, *2021 Army Modernization Strategy: Investing in the Future* (Washington, DC: Department of the Army, 2021), 2.

[5] Acquipedia, s.v. "Joint Capabilities Integration and Development System (JCIDS)," https://www.dau.edu/acquipedia-article/joint-capabilities-integration-and-development-system-jcids

on: (1) materiel solutions and (2) non-materiel solutions.[6] When sponsoring services or agencies propose new capabilities or updates to existing ones, they will present capability gap assessments to demonstrate the need and a feasibility analysis to show that it should be possible to develop and field the requisite improved capability. Feasibility analysis in the DOD is normally structured around *DOTMLPF-P* which stands for the eight specific areas that may change as a result of modernizing the capability: Doctrine, Organizations, Training, Materiel, Leader Development and Education, Personnel, Facilities, and Policy.[7] Each is explained below.

Doctrine

Military *doctrine* defines how a force intends to fight and how all associated enablers support the fight.[8] In recent memory, the U.S. Navy has endeavored to "control the seas" or "maintain forward presence."[9] The Air Force's doctrine included "air superiority" and "global reach."[10] The Army developed "Air-Land Battle" to be able to fight and win outnumbered during the Cold War and more recently made changes to compete across the spectrum of conflict. The Marine Corps has long envisioned being the nation's global response force. All of these examples drove the Services to organize and develop capabilities that allowed them to operate effectively according to the ideas represented by their doctrine.

In today's environment, service and joint doctrine acknowledge the ascendency of cyber and space domains and the need for capabilities that enable U.S. forces to maintain their competitive advantages in these areas. Some Services have

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[6] Chairman of the Joint Chiefs of Staff (CJCS), *Charter of the Joint Requirements Oversight Council (JROC) and Implementation of the Joint Capabilities Integration and Development System (JCIDS)*, CJCS Instruction 5123.01I (Washington, DC: Joint Staff, October 2021), D-12.

[7] Acquipedia, s.v. "DOTmLPF-P Change Recommendation (DCR)," https://www.dau.edu/acquipedia-article/dotmlpf-p-change-recommendation-dcr. Hereafter *DOTMLPF-P*.

[8] *DOTMLPF-P*.

[9] Department of the Navy, *Naval Operations Concept 2010* (Washington, DC: Department of the Navy, 2010). Chapters 4 and 7.

[10] Mark A. Welsh III, "Global vigilance, Global reach, Global power for America," *Air and Space Power Journal* (March-April 2014): 4-10.

updated their doctrine to take these changes into account, such as MDO in the Army and force design in the Marine Corps, while joint all-domain operations are being developed for the joint force. A significant change could be considered part of modernization if it changes the way that the services pursue the capabilities needed for the new doctrine or if the new doctrine transforms the employment of existing capabilities.

Organization

Organization governs how the services organize to fight.[11] These involve enterprise-level decisions about the organizing constructs of a service as a whole and do not include incremental adjustments that the services continuously do from ordinary changes to the budget, end strength, and priorities. Rather, when environmental factors or perceived threats change significantly, modernizing the organizational structure may be necessary.

There are several recent examples of this with the US Army. First was the creation of Stryker Brigades to improve the strategic mobility of its forces to react to mid-to-high-end threats as US forces became based more in the continental US.[12] Next was a move from a division-centric force to one based on modularized brigade combat teams in the mid-2000s in response to the recurring demand for combat forces in Iraq and Afghanistan.[13] More recent examples include: (a) the creation of Security Force Assistance Brigades (SFABs) in response to the demand for forces adept at training and organizing allied forces to augment U.S. capacity, and (b) Multi-Domain Task Forces to synchronize operations across all domains against near-peer threats. In each of these cases, the Army made significant changes to its structure to become more relevant and effective in the strategic environment.

The most recent major organizational change within DOD occurred with the creation of the US Space Force in 2020 as a

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[11] *DOTMLPF-P*.

[12] Alan Vick, David Orletsky, Bruce Pirnie, and Seth Jones, *The Stryker Brigade Combat Team* (Santa Monica, CA: RAND Corporation, 2002), iii-iv.

[13] William M. Donnelly, *Transforming and Army at War: Designing the Modular Force 1991-2005* (Washington, DC: Center for Military History, 2007).

separate service in the Department of the Air Force. Over time, the reorganization of existing forces and capabilities into the new service has resulted in the enhancement of U.S. capabilities in space and it should be considered force modernization.

Training & Leader Development and Education

Although separated in DOTMLPF-P because of differing staff proponents and responsibilities, conceptually these two areas overlap considerably. *Training* is about how those employing a capability prepare to fight and can include service programs for individual training, unit training at echelon, and joint and combined training. *Leadership & education* specifically focuses on preparing leaders to lead the fight from noncommissioned officer to flag officer.[14] Changes in training, leader development and education methods, or systems are rarely thought of as modernization. However, since significant competitive advantages for the US include the level of training of its combat forces and its leader development systems, improvements in these areas that create new capabilities could be considered modernization initiatives.

The establishment of the TOPGUN and Red Flag programs using "dissimilar air combat training" as a basis in the late 1960s/early 1970s notably improved the performance of Navy and Air Force fighter pilots and became the standard for fighter pilot training.[15] Other examples include:

- The Army's creation of three force-on-force Combat Training Centers in the 1980s/early 1990s revolutionized how infantry and armored units (with combat support and service support attachments) were trained. This resulted in a dramatic improvement in the capability that these units represented.

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[14] *DOTMLPF-P*.

[15] David Baranek, "TOPGUN: The Navy's First Center of Excellence," U.S. Naval Institute, *Proceedings* 145, no. 9 (September 2019): 1399; Ronald L. Rusing, *Prepare the Fighter Force-Red Flag/Composite Force* (masters' thesis, U.S. Army Command and General Staff College, 1980), 1-13.

- The Army's development of a Battle Command Training Program (BCTP) in 1987, now the Mission Command Training Program (MCTP), elevated the training of Division and Corps staff to a formalized TRADOC-controlled program that used a stressful, realistic combat simulation with live staffs, resulted in significantly better-trained staffs at all levels.
- The use in all Services of advanced live, constructive, and virtual training simulations so that more costly and dangerous live training can be conducted less frequently and to better effect, has resulted in better-trained individual Soldiers and Marines, pilots, tank and submarine crews.

In each case, the better-trained forces represented an improved capability that translated into a competitive advantage for the U.S. military.

Similarly, changes in the Army's Non-Commissioned Officer Education System (NCOES) formalized an investment in NCO development in the early 1980s.[16] The changes involved mandatory leadership schools and programs at critical points in NCOs' careers (mirroring officer development) that prepared them for the next level of responsibility and helped qualify them for higher ranks. In many ways, this normalized higher expectations for NCO performance and a transference of some responsibilities from commissioned officers to NCOs. This resulted in an NCO corps that is more competent, confident, valued, and invested in the Army which represents a significant capability improvement from the 1970s Army.

Materiel

Materiel modernization is the most recognizable element of military efforts to modernize as it involves all the equipment, spare parts, and maintenance systems needed to employ a

[16] Daniel K. Elder, *Educating Noncommissioned Officers*: *A Chronological Study on the Development of Educational Programs for U.S. Army Noncommisioned Officers* (Fort Belvoir, VA: NCO Historical Society, 1999), 36-39, https://ncohistory.com/wp-content/uploads/2020/05/educating-noncommissioned-officers.pdf.

capability.[17] The equipment programs that provide required capabilities to the Joint Force almost always originate in the services in response to changes in technology, the environment, or perceived threats. For that reason, each service has the infrastructure to support the identification and validation of required capabilities, the development and application of new or improved technologies, and the development, procurement, and fielding of (usually expensive) materiel solutions.

To fill a capability gap with a materiel solution, the materiel developer (or program manager) must have an approved requirements document. In the DoD, JCIDS governs the identification and validation of required capabilities. Through war gaming, simulations, and analysis, the services determine whether there are gaps between anticipated capability requirements and existing or projected capabilities. If there are gaps and the solutions suggested are materiel, the service or the Joint Staff must validate the solution as the best way to address the gap. This validated requirement allows the materiel program to compete for funding among many priorities. A fully funded program has the best chance of becoming a fielded system.

In the background of the discussion of capability gaps and materiel solutions is an extensive network of technology development and testing centers. These include government, commercial, and academic entities, often with partnerships between entities. These centers conduct basic and applied research that provides the technology backbone for modernized advanced weapons systems.

Decisions on Materiel

Senior leaders in the services and the DOD must consider the cost, technology maturity, technical feasibility, and risks associated with any materiel program that comes to them for decisions. Weighing all these factors, these acquisition executives (e.g., an Undersecretary of Defense, an Assistant Secretary of a Military Department) must decide whether to:

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[17] *DOTMLPF-P*.

- Upgrade current equipment
- Buy already-developed and available (i.e., off-the-shelf) equipment
- Develop, procure, and field new equipment; or
- Assume risk by not addressing the capability gap

In most cases, it is more expensive and takes more time to develop, procure, and field a new system than the other alternatives. Many times, the acquisition executive decides to upgrade current systems at a much lower cost. The B-52 bomber, M-1 tank, and F/A-18 are examples of systems that, through continuous and deliberate upgrades, represent significantly more modernized capabilities than the originally fielded system. Often these decisions involve joint solutions that require agreement from multiple services on the specifications for the combat system. The Joint Strike Fighter/F-35 (USAF, USN, USMC) and the Joint Light Tactical Vehicle (Army, Marine Corps) are examples.

Acquisition Systems

If the acquisition executive decides to develop or improve a materiel system solution, a program is established using the processes of the Defense Acquisition System (DAS). At a summary level of detail, a *program manager* (PM) is generally appointed to manage the development, testing, production, and fielding of these systems to the force. Starting with a valid requirements document and sufficient funding, the PM must manage the cost, schedule, and performance requirements of their program as documented in the program's Acquisition Program Baseline.

The DAS has six distinct pathways that PMs can use to tailor the program's acquisition strategy to align with the specific

characteristics of the system being developed. The six pathways defined in DOD Instruction 5000.02 are:[18]

Major Capability Acquisition. For a hardware system, this is the standard pathway. It starts with an analysis of alternatives, followed by the development of critical technologies, development and testing prototypes, and then manufacturing and fielding the system.

Middle Tier of Acquisition. This pathway is for cases where the technology is relatively mature, and the PM decides to rapidly develop and demonstrate prototypes and/or field the system.[19]

Urgent Capability Acquisition. This pathway is designed for urgent operational needs where minimal development is required and the capability can be delivered in less than two years.[20]

Software Acquisition. This pathway is for non-hardware software-intensive systems where it is expected that updates due to capability improvements, bug fixes, and security patches will be routine.

Defense Business System. This pathway is similar to the Software Acquisition pathway and is for information systems that support DoD business operations.[21]

Acquisition of Services. This pathway can be used to acquire a wide array of services from the private sector.[22]

Regardless of the approach and/or pathway taken, equipment modernization involves more scrutiny than other solutions because of the costs, the lengthy schedules required for development, testing, and fielding (often more than 10 years), the involvement of the defense industrial base (and subsequent Congressional interest), and the implications for national security. It is important to recognize that the defense industrial base includes facilities both in the private/commercial sector and

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[18], Department of Defense (DoD), *Operation of the Adaptive Acquisition Framework*, DoD Instruction 5000.02 with change 1 (Washington, DC: Department of Defense, 2022), 10.

[19] DoDI 5000.02, *Adaptive Acquisition Framework*, 13.

[20] DoDI 5000.02, *Adaptive Acquisition Framework*, 12.

[21] DoDI 5000.02, *Adaptive Acquisition Framework*, 14-15.

[22] DoDI 5000.02, *Adaptive Acquisition Framework*, 16.

within the DoD (the organic defense industrial base). Increasingly, the U.S. is also collaborating with allies and partner nations to develop and procure its military capabilities. The F-35 Joint Strike Fighter is a prominent example of such an international program. Rather than develop and produce their own, unique systems, some allies and partner nations choose to purchase modern equipment from the U.S. through Foreign Military Sales (FMS) or Direct Commercial Sales (DCS).[23]

Personnel

The *personnel* area regards the availability of qualified personnel to man capabilities.[24] Periodically, environmental changes drive the Services to modify personnel functions or management to maintain a competitive edge. These modifications might involve who or how the Services recruit, the compensation package offered to service members and their families, or changes in the approach to personnel management. A recent example of this is the recognition of the need for cyber expertise across the Joint Force. This somewhat radical, non-physical domain (as compared to Land, Maritime, Air, and Space) and the unique skills required to succeed in it prompted the development of cyber specialties in each Service and varied approaches to recruiting, training, and retaining people with these skills.

Another example is the move across the DOD (especially in the Army) to develop a personnel management system based on talent management principles. The current systems are based on an industrial age model that invests heavily in the broad development of skills and experiences along a set career path with little consideration of the individual talents and desires of the people involved. A talent-based system is intended to provide more flexible and tailored career paths to maximize the talents (and retention of those talents) of the people involved for the ultimate benefit of the Service. If this change is successfully

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[23] For more information on FMS and DCS, see Defense Security Cooperation Agency (DSCA), *Foreign Customer Guide*, (Washington, DC: DSCA, July 2018), https://media.defense.gov/2025/Mar/19/2003669545/-1/-1/1/2020_DSCA_FOREIGN_CUSTOMER_GUIDE.PDF.

[24] *DOTMLPF-P*.

implemented, it could represent an improvement of the overall personnel capability that is at the center of the U.S. competitive advantage.

Facilities

Facilities include real property, installations, and industrial facilities that support the warfighter in garrison and during operations.[25] Often when other modernization initiatives are implemented, facilities must be created or upgraded for the modernization to be fully realized. This can include new training ranges or simulation facilities, power projection platforms or facilities to store, maintain, and issue pre-positioned equipment in critical areas around the world, or organic industrial base improvements to enhance the maintenance or manufacture of modernized materiel. Additionally, the creation or enhancement of mobilization facilities can provide the US with a critical capability that can also be considered modernization.

Policy

Policy establishes common approaches and procedures.[26] Finally, changes in policy can result in modernized capabilities. Many times, the policy is related to other DOTMLPF-P domains, but sometimes policy changes themselves force modernization. Two examples are illustrative. First was the change from a conscripted force to an all-volunteer force in 1973. Over time, this legislative change resulted in higher quality service members (in terms of better test scores, percentage of high school graduates, and fewer criminal records)[27] and it allowed the Services to demand better performance and fewer discipline problems from the better-compensated recruits. For decades, the All-Volunteer Force has been touted as an incredible success for the military and the Nation.

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[25] *DOTMLPF-P*.

[26] *DOTMLPF-P*.

[27] Louis G. Yuengert, "The All-Volunteer Force: A Success?" *Parameters* 45, no. 4 (Winter 2015-16): 53-64.

The second example is the Army's change from an individual rotation policy during the Vietnam War to unit (primarily) rotation during the Iraq and Afghanistan Wars. This change allowed units that had trained and prepared together for deployment to combat, to fight together as a cohesive team. The fact that all of the unit's members deployed and redeployed at the same time mitigated the constant churn within units experienced during Vietnam as individuals arrived and departed on their own deployment schedules.

Conclusion

While DOTMLPF-P is an appropriate framework to use in discussing modernization, its primary use is to categorize capability development requirements. For the resulting capabilities to be implemented successfully, and thus contribute to modernization, Services must pay attention to many force integration considerations (the actions and processes used to design, resource, man, train, and equip units). Some of these include management of fielding and new equipment training, prioritization and funding of new initiatives, embedding the capability changes through organizational and training management decisions, and adjustment of sustainment and logistics systems.

Realistically, major modernization discussions will continue to be primarily about materiel development and procurement or materiel upgrades, but it is a mistake to consider only materiel when it comes to modernizing U.S. capabilities. As the Army Modernization Strategy correctly states, it is "how we fight," with "who we are," and "what we fight with" that make up the entire modernization enterprise. When senior leaders are making decisions regarding tradeoffs between force structure, modernization, and readiness balanced by risk, they should understand and consider this. Ultimately, it could result in a modernized force at a lower cost which could make for better decisions about these tradeoffs.

5. Readiness

Tom Galvin

> *Military [readiness] demands personnel, weapons, equipment, and supplies of adequate quality in the proper mix and in sufficient quantities to accomplish assigned missions wherever and whenever directed. Preparations take present and projected requirements into account. Perceived threats, doctrines, plans, programs, military infrastructure, the industrial base, and budgets strongly shape results. Problems develop whenever any aspect becomes deficient.*
>
> *--Collins, John M. (2004), Military Preparedness: Principles Compared with U.S. Practices*[1]

In the past, leaders have probably been accustomed to talking about readiness as the key measure of an organization's ability to do the mission. Indeed, at the tactical and operational levels, leaders devote most of their energy toward the states of their units. Are the prescribed numbers of people and equipment on hand? Are they available for the mission? When the answer to either question is 'no,' what are unit commanders doing to correct it?

But this is a small part of the overall picture. Consider everything that military units depend upon to fight that is not organic to that unit. Intelligence, sustainment, communications, etc. – are they ready to go, too? Of course, those capabilities also have internal readiness measures to satisfy. Hopefully, if they are ready, that should mean their supported units can count on them. The responsibility for ensuring that all the capabilities come together and are ready as a force belongs to the defense enterprise.

At the enterprise level, *military readiness* is the capacity of military forces and capabilities to fight as designed in accordance

[1] John M. Collins, *Military Preparedness: Principles Compared with U.S. Practices*, Report #94-48 (Washington, DC: Congressional Research Service, 1994). Note: "Preparedness" and "readiness" are synonymous in Collins' work, but this primer treats readiness as a military function and preparedness as a national function.

with strategies and plans. Readiness is therefore not only concerned with the capacity of military forces but also the capacity of the enterprise to properly design and sustain the force. The linkage to the strategic choices framework is clear – readiness measures the extent to which the forces on hand match the force as designed (see Chapter 3).

Meanwhile, the nation has a role to play as well. National leaders have a responsibility to provide the personnel, materiel, real property, and (most importantly) the will of both the government and the people to support the force. This will be referred to as *national preparedness*, a benchmark of confidence in the nation's ability to address threats to national security interests, both foreign and domestic, using all instruments of national power—diplomatic, informational, military, and economic.

As stewards of the military profession, defense leaders straddle the boundary between national preparedness and military readiness. They advise national leaders on the strategies based on their diagnosis of the current and future security environments and judgments regarding the needed forces (types and quantity) to best protect the nation, along with rational assessments of the risk assumed if those forces are not provided. They develop plans to convert resources into capabilities, and then monitor the state of those capabilities as readiness reports.

"Are We Ready?"

The question of *are we ready?* lends itself to ideas of measurement. However, one can never know with certainty that a force is ready until the war begins. At that point, it is knowable what differs between the war that the force was preparing for (leading to the *force as designed* from Chapter 3) and the actual war that unfolds. Therefore in peacetime, it is best to treat measures of military readiness are mere indicators. However, as indicators, readiness measures can be misleading. The following subsections illustrate some of the potential problems.

Questionable assumptions about measuring readiness

Traditional readiness measures rely heavily on quantifiable metrics such as percentages or ratings. These allow leaders to identify problems at a glance and prioritize resources to correct

them. However, this works well if a few critical assumptions hold. First, capabilities can be measured on meaningful scales to assess a capability's readiness as *high* or *low*, and any number of levels in between. For platforms, such as tanks and aircraft, such measures might be easier to develop and more accurately describe readiness levels. For example, given two platoons with four tanks each, a platoon with three serviceable tanks is at higher readiness than a platoon with only two. On the other hand, networked systems present challenges in developing the right measures because there may be little connection between the percentage of capable components and the overall capacity to build a suitable network. An information network may still be fully capable despite the loss of a significant number of nodes or may be completely unready when a single critical node is down at a time when there is no redundancy. The percentage of tactical drone swarms of unmanned aerial systems may similarly not provide an accurate indicator of capacity, as the quantity of drones is less important than the effectiveness of the communication systems and networks allowing drones to coordinate their actions. In the case of drone swarms, more is not necessarily better.[2]

Second, it is assumed that the unit is properly designed such that the ratings accurately reflect a unit's state of readiness for the anticipated or designated fight. If the force is properly designed, one would expect high readiness in peacetime to lead to higher mission effectiveness during operations. However, one must be wary of taking such measures at face value because the readiness of higher-echelon commands may not be measurable directly. In contemporary times, one cannot easily assemble a whole corps with all its enablers to conduct maneuvers to assess its readiness. Instead, one must rely on proxy measures such as aggregating readiness ratings of subordinate units and using substitute events such as small-scale exercises, wargames, or simulations that attempt to replicate an operational environment. While helpful

[2] Zachary Kallenborn, "InfoSwarms: Drone Swarms and Information Warfare," *Parameters* 52, no. 2 (Summer 2022): 87-102, doi:10.55540/0031-1723.3154.

for planning purposes, the accuracy of such measures can always be questioned.[3]

Third, to some extent, the enterprise assumes that other government agencies and the defense industrial base will do their part when the time comes to fight the next war. The enterprise will therefore gravitate to measuring and correcting what it can control. The rest is pursued through negotiation and collaboration with these external actors. Trust is paramount but cannot be assumed. There may be limited political will to fight or the industrial base may be ill-prepared to surge manufacturing capacity for the goods the military needs at that time.

A qualitative approach for the enterprise level

Thus, despite efforts to quantify readiness at unit levels, readiness is ultimately a qualitative measure. Moreover, it requires judgment because the actual war will rarely match the war that the force was designed to fight. One can judge readiness in one of two ways. The first is *threat-based*, and it is the simpler case. Readiness at the enterprise level measures the expected difference in readiness between friendly forces and the adversary. For example, readiness could indicate differences in capacity, such as "we" are more ready than "they" are because "we" have one hundred available ships and "they" only have seventy-five. Or the difference could be expressed as overmatch, such as "our" airframes are 5th generation and "theirs" are only 4th and therefore "we" would control the skies.

The other way is *capabilities-based*, also known as conditions-based where there is not a clear adversary or there is greater uncertainty surrounding the type of fight against which the force is preparing. Rather than an adversary, readiness is compared to leader or stakeholder expectations. These expectations can come from various sources. The most desirable are the national military strategy documents such that readiness measures compare the current force to the force as designed. The risk, as shown in

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[3] Richard K. Betts, *Military Readiness: Concepts, Choices, Consequences* (Washington, DC: Brookings Institution, 1995), 90.

Chapter 3, is that the force as designed may differ from the force visualized in the strategy by stakeholders because of budget or other constraints.

Principle-based measures of readiness

Therefore, at the enterprise level, states of readiness are described rather than empirically calculated. Below are eight qualitative measures of readiness based on John Collins' work during the years following the Cold War as the U.S. shifted from threat-based assessments against the Warsaw Pact toward a more capabilities-based approach. Each of these compares *both* the force on hand against the force as designed *and* the force as designed against the force visualized in the strategy. In other words, the forces "we" have are ready, and they are indeed the right forces for the next fight.[4]

Aligned with Assigned Roles and Missions – How well or poorly does the organization's mission and structure match what is needed to fight and win? A problem of alignment is when the organization has the wrong capabilities with which to fight – like having horse cavalry when armored cavalry was becoming common.

Overmatch (or Qualitative Superiority) – Does the organization lack the capabilities needed to fight and win against anticipated opponents? Modernization brings new materiel capabilities to sustain such overmatch, but there is also a human dimension. Leader development, education, resiliency, and fitness also provide overmatch.

Sufficient (or Quantitatively Superior) – Given a capability, does the organization lack capacity—manpower, materiel, information, etc.--to fulfill its responsibilities? Numbers of ready units provide only part of the answer, which

[4] Thomas P. Galvin, *Leading Change in Military Organizations: Primer for Senior Leaders*, 2nd ed. (Carlisle, PA: Department of Command, Leadership, and Management, 2023), 55-56. These principle-based measures are derived from Collins, *Military Preparedness*.

includes how many of them can deploy where needed to influence the situation and seize the initiative.

Adaptable – To what extent is the organization ill-structured, equipped, trained, and ready to handle uncertainty, or the requisite variety of missions it may face? It is a potential problem if, during the fight, the organization finds itself incapable of realigning or restructuring its capabilities as required to sustain comparative advantage.

Interoperable – Does the problem indicate an inability to plug-and-play with others, internally or externally? Is the organization inhibited from assembling capabilities into tailored force packages for employment? Is the organization unable to add or subtract capabilities with minimal disruption to those employed? Can the force package interoperate with external entities, such as other government agencies or allies and coalition partners? Interoperable organizations maximize the strengths and minimize the weaknesses of their parts.

Mobilizable and Sustainable – Can the organization respond to a mission requirement as quickly as needed? This can include an assessment of the qualities and locations of available facilities, infrastructure, outsourced capabilities, logistics, and other critical support for operations. It also addresses surge capacity to set the theater and project national power.

With Foresight – How well does (or can) the organization balance short-term with long-term requirements, such as ensuring proper manning and equipping for today while continuously modernizing for the future? This principle speaks to risks associated with trading current unit readiness for modernization. Balance is critical.

With Will to be Ready – Is the organization lacking the resources or access to national resources such that it is unable to be prepared? Or is the organization signaling to adversaries that the organization is in any way

unprepared to fight and win and appears unable or unwilling to prepare?

Tradeoffs

One would want advantages across all eight principles because the enemy could undoubtedly exploit any advantage they have. However, there is potential tension among the principles such that maximizing one reduces another. For example, it may be prohibitively expensive to pursue both overmatch and sufficiency at once. The result may be a trade-off: use cutting-edge technologies but maintain a smaller standing force or emphasize mass over effectiveness. Interoperability can conflict with overmatch if a newer capability is only available to a part of the force, such as one battalion having the newest tanks but the rest of the brigade having older ones.[5]

The dynamics of the environment also come into play. A force may have an advantage against an enemy in some capabilities while being disadvantaged in others. It may have the advantage today but not in the near future against an emerging adversary. A force may prefer to fight in one theater, but the enemy may try to draw it into conflict elsewhere, where the force's advantages are lost.

The implications are that the overall question, "Are we ready?" is fraught with tradeoffs. Strategies may provide adequate guidance as to which tradeoffs to make at the enterprise level, and it becomes incumbent upon the enterprise to design both the force to meet that strategy and the measures needed to determine how well the force meets the design. As Ken Betts (1995) explains, the aftermath of the Cold War created expectations inside and outside the military that the nation had to be prepared for any mission at any time, and rapidly deployable or expeditionary capabilities were valued. But if a nation prioritizes such rapidly deployable forces, would there be enough

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[5] Frank N. Schubert and Theresa L. Kraus (eds.) *The Whirlwind War: The United States Army in Operations DESERT SHIELD and DESERT STORM* (Washington, DC: Center for Military History, 2000), 71-72, https://history.army.mil/books/www/www4.htm

resources invested in the follow-on capabilities?[6] No matter how readiness was described and operationalized, there was always risk and the need for balance between competing priorities.

Essential Questions

Betts sought to simplify and clarify the meaning of preparedness to help leaders and planners make the best use of available resources. He offered the following broad and "comprehensive" definition of preparedness with the label "capability in time," comprising the following three statements:

- Readiness "pertains to the relationship between available time and needed capability"
- A force "is ready as long as the time needed to convert potential capability into the actual capability needed is no longer than the time between the decision to convert and the onset of war"
- A force "proves not to be ready when a gap between its actual and potential capability causes a gap between the supply of capabilities and the demand for it."[7]

Time is a critical component in Betts' definition. He lays out three very important questions that determine how a force manages readiness over the long term:

- *Readiness for when?* This is about the time needed to get the force from its peacetime posture to a warfighting posture.[8] Betts explains that an important part of the calculus is the adversary's actions, which trigger political decisions about whether to surge military capabilities in response.[9]

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[6] Betts, *Military Readiness*, 43-44.
[7] Betts, *Military Readiness*, 27-28.
[8] Betts, *Military Readiness*, 33.
[9] Betts, *Military Readiness*, 33.

- *Readiness for what?* The expected war or operations naturally determine the capabilities needed to fight and win.

- *Readiness of what?* Combined with the above two, this concerns how much capability must be at high readiness and how much of it can be mobilized later from the reserves or through a national mobilization. Also, what additional capabilities are needed to perform the mobilization?

Five Components of Military Readiness

Recent work at the U.S. Army War College and RAND Corporation has sought to develop measures of strategic readiness that an enterprise can use to prepare forces for both near-term conflicts and emerging threats over the long haul. Both efforts broke Betts' time horizons down to four levels, shown in Figure 5.[10] The traditional military usage of the term readiness focuses more on the shorter time frames, depicted as operational and structural readiness, whereas the longer timeframe incorporates both the military's readiness for the next major conflict mobilization and long-term sustainability readiness and the nation's preparedness to sustain it.

However, absent from the discourse has been the institutional ability to manage the force so it remains sufficiently ready. This is captured by the fifth component of strategic readiness, called enterprise readiness, also shown in Figure 5. Enterprise readiness includes both intellectual and administrative factors that allow staffs and commands to plan the war, deploy trained and ready forces, and sustain them over the duration of the fight.[11] The remainder of this chapter introduces these five components.

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[10] Bradley Martin, et al. *Measuring Strategic Readiness: Identifying Metrics for Core Dimensions* (Santa Monica, CA: RAND Corporation, 2021).

[11] Thomas P. Galvin, Con Crane, and Michael Lynch, "Enterprise Readiness: Providing Strategic Agility for the Next Big War," in *Power Projection: Proceedings of the first Strategic Landpower Symposium* (Marine Corps University Press, 2024), 80-102.

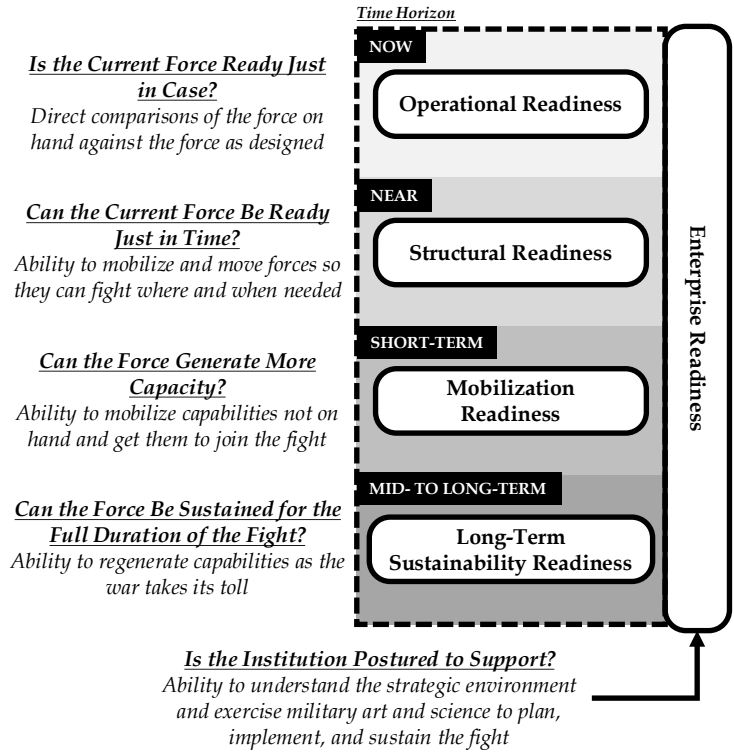

Figure 5. Five Components of Readiness[12]

Operational Readiness

Per Betts (1995), *operational readiness* "pertains to the relation between available time and needed capability."[13] Given a forthcoming mission, leaders would need to know the state of each unit identified for the mission and take necessary steps to correct shortcomings (e.g., personnel, training, equipment) before employment. Betts refers to this as, and this typically comports with the common use of the term "readiness" at the unit level.[14]

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[12] Original graphic by author.
[13] Betts, *Military Readiness*, 27.
[14] Todd Harrison, "Rethinking Readiness," *Strategic Studies Quarterly* 8, no. 3 (Fall 2014), 56.

These appraisals determine what is necessary to bring an *entity*, defined as "individuals, teams, sections, flights, companies, squadrons, battalions, ships, groups, wings, divisions, task groups, air forces, fleets, corps, expeditionary forces, armies, major commands, Services, defense agencies, and military departments, to the Department of Defense as a whole"[15] from pre-mobilization to a warfighting standard to deliver the capabilities for which they were designed.[16] Readiness reporting is nested, such that readiness reporting of larger entities incorporates reporting of subordinate entities.

This type of readiness is the one probably most familiar to military officers and it is the simplest to understand. It is the measure of how ready a force is right now. Unit status reports measure to what extent personnel are on hand and trained, to what extent equipment and facilities are on hand and serviceable, and to what extent current mission requirements or commitments (e.g., borrowed military manpower) detract from the ability to employ the unit now.

Operational readiness measures the force as designed, which is not necessarily the same as being ready to fight the actual war. A well-trained and fully equipped tank battalion will be considered highly ready, even if the nation has no actual need for tanks. Managing operational readiness involves answering questions concerning the force having enough of the capabilities it is expected to have. Shortfalls in the prescribed capability or capacity levels should trigger immediate corrective measures to acquire or replace personnel or equipment.

Structural Readiness

Betts (1995) also said that a nation is prepared if "the time needed to convert potential capability to actual capability is no longer than the time between the decision to convert" and when

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[15] John C. F. Tillson (Project Leader), *Independent Review of the DoD's Reporting System*, IDA Paper P-3569 (Alexandria, VA: Institute for Defense Analyses, 2000), 8.

[16] Craig Moore, Jack Stockfisch, et al., *Measuring Military Readiness and Sustainability* (Santa Monica, CA: RAND Corporation, 1991), 79.

they must be employed.[17] Betts referred to this as *structural readiness* in that the forces must be structured such that they can grow, reorganize, and adapt for the mission.

Structural readiness represents measures to preserve capabilities at lower levels of readiness with the expectation that they can be brought to full readiness in a short period. It is called structural readiness because it involves having the structures in place now so that the only requirement to achieve full readiness is to fill the structure – populate the missing faces, gather the needed equipment, and train the unit for the mission.[18]

Force generation models are one form of structural readiness. It is too expensive and risky for the defense enterprise to keep all units at full operational readiness, so enterprise programs provide opportunities to systematically bring units to lowered states of readiness to reset. This allows for other important activities to take place such as transformation efforts, new equipment fielding, high-level or depot maintenance, professional schooling, health maintenance activities, and others. Force generation models come in many forms, including conceptions of 'tiered readiness' where part of the force is maintained at higher readiness while others are perpetually maintained at lower levels, or 'cyclic readiness' where units rotate through pre-planned periods of alternating high and low readiness. Ostensibly, these models save money and resources, prevent degradation of equipment due to overuse, and preclude burnout of personnel. However, the risk of any force generation model is the ability to reconstitute units in full when called upon within the expected time frame.

Mobilization Readiness

A force is *not* prepared if "the gap between actual and potential capability causes a gap between the supply of capability and the demand for it."[19] One can generally assume that some capabilities will simply never be on hand in sufficient quantities during peacetime. Perhaps it is located in one of the reserve

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[17] Betts, *Military Readiness*, 28.
[18] Betts, *Military Readiness*, 28.
[19] Betts, *Military Readiness*, 28.

components or must be accessed via a contract vehicle or through an agreement with another nation. The question is therefore to what extent does the force have the ability to generate capabilities that it does not have organically within the required time? Betts calls this *mobilization readiness*, but it will also be referred to here as *expansibility*.

This form of readiness implies both military and national responsibilities. The nation must provide the personnel and materiel (goods and services) to augment the force (see Chapter 9). while the defense enterprise must mobilize itself and increase its capacity to accept, train, equip, and organize these new service members into ready units to be employed. This may require the enterprise to be itself expansible, to include real property should more training areas or facilities be needed (see Chapter 3).

However, another critical factor in mobilization readiness is that the act of mobilizing requires a political decision. Such decisions may not come about on the military's preferred timeline that would satisfy the military's answers to the questions of "ready for when" and "ready of what." Instead, the enterprise may have to consume readiness having forces identified and at the ready to mobilize for a decision that may come later or not at all. When the decision does come, the conditions may have changed and different capabilities may be needed, or the civilian leadership may have redefined the mission or placed constraints or caveats on the quantities and allowable actions by the force. Therefore, in addition to the capacity to mobilize forces, the defense enterprise must also consider the capabilities and capacity to adapt both to the changes in mission and to the authorities vested in military commanders once the political decisions are made and communicated.

Long-Term Sustainability Readiness

Moore et al. (1991) address *long-term sustainability readiness* as the ability of the nation to sustain the fight over a protracted period, beyond the effects of the initial mobilization. How might the nation handle another World War II-like or another major war scenario where resources and industries may have to be nationalized, the population continuously tapped into for recruits, and the people constantly having to be reminded of the

war's purpose and necessity and therefore put their own needs aside. Key inputs to measuring sustainability include stockpiles, facilities, and infrastructure associated with mobilizing forces, systems of production and distribution, and organizational modeling to shift supplies to meet ever-changing demands.[20]

Long-term sustainability readiness addresses the scenarios that nations may not wish to address. The capabilities of concern become important when the nation's war effort extends across all segments of society. Most if not all resources, public or private, are eligible to be redirected to the war effort as the defense enterprise shifts from mainly generating capabilities to regenerating them. As casualties are brought back from the battlefields, equipment is damaged beyond repair, and lines of communication are disrupted, the nation may need to pull deeper into its resources to keep the fight going while also continuing to develop other capabilities that might provide the decisive edge.

While this form of readiness implies greater responsibility on the nation, the defense enterprise has its roles, too. It must continuously assess the impacts of the war and the requirements to regenerate capabilities and make or recommend decisions that help minimize those impacts while ensuring full support to the mission. It therefore requires the establishment of processes, systems, and intellectual capital to identify requirements in the current fight while monitoring the global environment for new or emerging threats in other theaters.

Long-term sustainability readiness also addresses matters of preparing for the peace that places demands on resources over and above what is available to the defense enterprise. This includes the roles and capacities of the other instruments of national power – diplomatic, informational, and economic. Post-conflict stabilization may require significant investment from defense, law enforcement, medical, judicial, financial, and other sectors. The requirements may not be knowable in advance and forecasting them may be difficult. War fatigue may also influence the will to devote the necessary resources as nations may wish to

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[20] Based on Moore et al., *Measuring Military Readiness*, ix.

bring the troops home as soon as possible. Nonetheless, the enterprise must be ready to manage the transition from war to peace and, if unfortunately necessary, back to war should hostilities resume.

Enterprise readiness

Enterprise readiness measures the capacity of the institution to prosecute and sustain the war. It includes developing and implementing effective, efficient, and agile warplans. There are two associated sub-measures: (1) the enterprise's capacity for planning against the expected war, and (2) the individuals' collective capacities for implementing the actual war.[21] The *expected war* is the war that informs peacetime strategies and the development of capabilities by the defense enterprise. The *actual war* is the war being fought. Naturally, it is desired that the expected and actual wars should be close enough together such that the force fights and wins as originally designed. However, the enemy will endeavor to exercise strategic surprise and exploit friendly vulnerabilities to negate any competitive advantages. A high state of enterprise readiness provides the necessary agility to assess the environment and adapt the force.

Enterprise readiness is a measure of the military's capacity to operationalize its expert knowledge. This capacity is built through professional military education, training, and work experiences. These result in the development of competencies that allow leaders to better exercise their professional judgment and adapt their units at echelon to the situations facing them. Competencies include: (a) analyzing the environment and forecasting, (b) developing practical, feasible, and suitable concepts and doctrine, (c) designing organizations, (d) establishing and articulating requirements, and (f) exercising outreach to sustain access to domains of expert knowledge outside the military. These competencies are perishable through non-use or suppression from bureaucratic and other external pressures.

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[21] Galvin, Crane, & Lynch, "Enterprise Readiness."

6. Risk Management

Doug Orsi & Lou Yuengert

Understanding and managing risk is one of the key responsibilities of strategic leaders as they operate within the defense enterprise. This chapter provides a generalized lexicon of risk management terms and uses an internationally recognized risk management framework to address how leaders can address the challenges they face. Finally, it addresses risk using two U.S. frameworks that will help leaders navigate decision-making at the defense enterprise levels.

Definitions

The *International Risk Governance Council (IRGC) Risk Governance Framework* provides the foundational terms of reference used in this chapter.[1] This work serves as the basis to describe terminology and gain a basic understanding of managing risk. To begin, the term *risk* is defined as, "the potential for something adverse to happen."[2] For strategic or enterprise-level leaders, examples of strategic risk can range from a failure to modernize military forces over time or improper alignment of strategy and resources, to problem misidentification in a volatile, uncertain, complex, and ambiguous environment.[3] According to the IRGC, a *hazard* is something that "has the potential to cause harm".[4] Finally, a *threat* is a hazard (someone or thing) such as an adversarial state or non-state actor, whose likelihood of taking harmful action informs a level of risk.[5] Once a common lexicon is

[1] International Risk Governance Council (IRGC), *Introduction to the IRGC Risk Governance Framework*, revised version (Lausanne, Switzerland: EPFL International Risk Governance Center, 2017), 14, https://irgc.org/wp-content/uploads/2018/09/IRGC.-2017.-An-introduction-to-the-IRGC-Risk-Governance-Framework.-Revised-version..pdf. Hereafter *Risk Governance Framework*.

[2] Thomas P. Galvin and Jay Rouse, *The Challenges of Managing Strategic Risk: Setting a Foundation for Joint Decision-Making Faculty Paper* (faculty paper, Carlisle, PA: Department of Command, Leadership, and Management).

[3] T. Owen Jacobs, *Strategic Leadership: The Competitive Edge* (Washington, DC: National Defense University, 2002), 13.

[4] *Risk Governance Framework,* 14.

[5] Galvin and Rouse, *Challenges of Managing Strategic Risk*.

used, having a framework in which to apply it systematically is the next step to assess and manage risk.

A Risk Governance Framework

The IRGC offers a simple framework, shown in Figure 6, for leaders to assess and manage risk. This four-phased process includes: (1) Pre-assessment, (2) Appraisal, (3) Characterization and Evaluation, and (4) Management. Phases 1-3 (the right-hand side of the graphic) contribute to a better *understanding* of the risk and phases 3, 4, and 1 (the left-hand side) contribute to *Deciding* how to address risk.[6] These elements follow the major components leaders use to guide themselves and their organizations through managing risk at the strategic level.

This framework intuitively breaks down the process of managing risk by initially focusing the leader on the right side of the model, where Understanding occurs of the risk an organization or nation is facing.[7] In the Pre-assessment phase, leaders can use tools such as operational design, systems thinking, critical thinking, and others to frame the problem and understand the environments in which they operate. An example of this is that prior to a UN-authorized peacekeeping mission, an Army Headquarters staff leverages operational design to better understand the deployed environment and begin the process of ascertaining who the actors are and what violence is occurring within the borders of the country.

During Appraisal, leaders must identify hazards, causes, and consequences of the risk they face.[8] During this element, leaders can leverage systems thinking to map out the different extremist organizations and political/tribal and clan organizations to gain an understanding of the possible threats and risks.

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[6] *Risk Governance Framework*, 10.
[7] *Risk Governance Framework*, 9.
[8] *Risk Governance Framework*, 9.

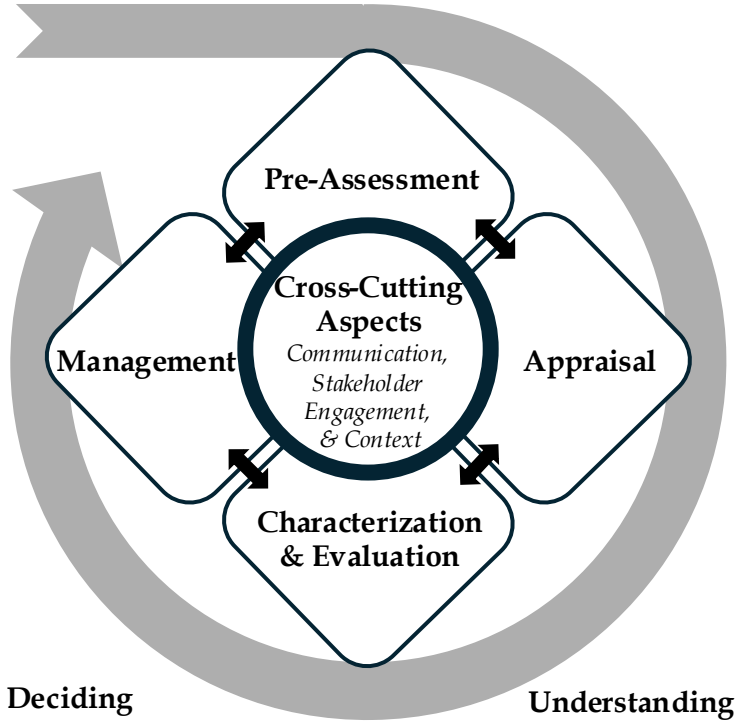

Figure 6. IRGC Risk Governance Framework[9]

Now that leaders understand their environment and have appraised the risks they face, the framework moves the user from Understanding the threat to Deciding, where decision-making and management of the risk occurs. In Characterization and Evaluation, leaders make judgments on the impacts of the risks and evaluate options to reduce or mitigate their effects.[10] In this phase, leaders could use Design to begin to develop options for an operational approach to reduce violence during this peacekeeping mission.

Finally, in Management, leaders make decisions to manage the risk and monitor the implementation of controls. In the

[9] Adapted and simplified from *Risk Governance Framework*, 9.
[10] *Risk Governance Framework*, 9.

peacekeeping example, the Army commander selects an operational approach that is centered on reducing violence in the population while addressing infrastructure rebuilding and increasing employment for adult males.

Throughout this framework, Cross-cutting Aspects include constant communication internally and externally, engagement with key stakeholders, and understanding the organization's risk culture and the "broader social, institutional, political and economic contexts."[11] The Army commander used these cross-cutting aspects in the preparation for the organization to deploy and operate in this new environment.

With the IRGC's framework in which to evaluate and manage risk, how do leaders at the strategic level address risks that impact things such as developing strategy or force structure, modernization, and readiness within the defense enterprise of their nation? The U.S. Army War College introduces students to a variety of models and frameworks to navigate the complex strategic environments facing graduates who operate at the defense enterprise level. Two that focus on balancing risk with other factors in decision-making are the Strategy Formulation and the Strategic Choices Frameworks, discussed in the next two sections.

Applying Risk to Strategy Formulation

The Strategy Formulation Framework (see Figure 7) is used for developing strategies in pursuit of national interests. Leaders must balance risk when formulating the overall objectives (ends) while deciding which method (ways) and national resources (means) to use in pursuing those objectives. They must also consider the impact of the global and domestic environments on that strategy.

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[11] *Risk Governance Framework*, 32.

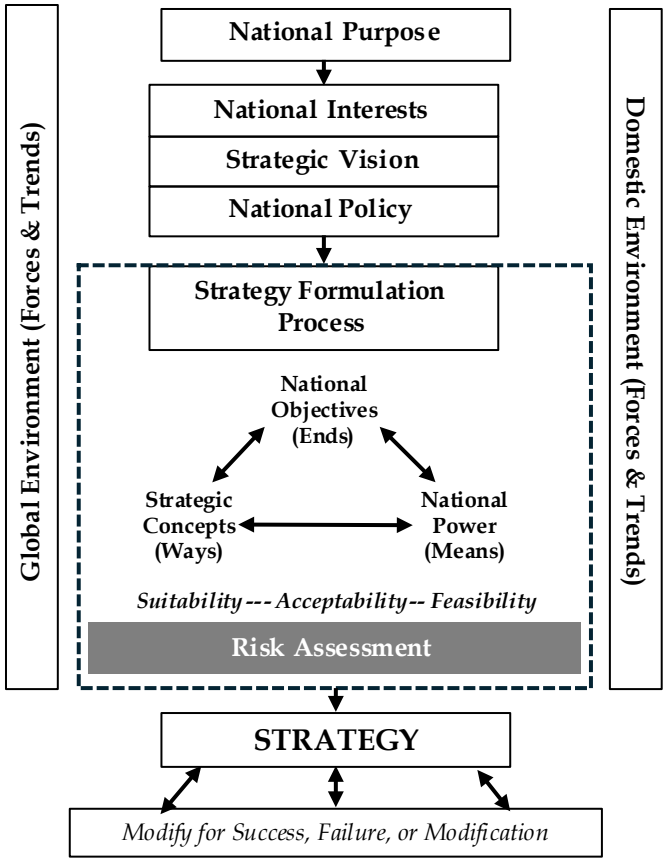

Figure 7. The Strategy Formulation Framework[12]

Definitions matter when it comes to assessing different types of risk from a U.S. perspective. Risk is also assessed in many ways based on circumstances and context. When dealing with national policy, strategists view risk from the perspective of intrinsic, external, and implementation risks.[13] The U.S. Army War College

[12] Adapted by authors from Boone Bartholomees, "Guidelines for Strategy Formulation," in Boone Bartholomees (ed.), *U.S. Army War College Guides to National Security Issues*, Volume II: National Security Policy and Strategy, 5th ed. (Carlisle, PA: Strategic Studies Institute, 2012), 413, https://tile.loc.gov/storage-services/master/gdc/gdcebookspublic/20/23/69/27/77/2023692777/2023692777.pdf.

[13] Bartholomees, "Guidelines," 417.

defines *intrinsic risk* as, "the relationship among the ends, ways, and means of a strategy. If the objective (end) is too substantial for the resources allocated, or the ways under consideration are inappropriate for the means or ends, or the concept (way) envisioned is too grandiose for the available means and ends — then the strategist has identified intrinsic risk in the strategy."[14] *External risk* is defined as, "all of the actors (domestic and international) that can influence the development or implementation of the strategy."[15] In the U.S. defense enterprise, these actors include military services, Department of Defense agencies and activities, Congress, the Executive branch (including the Office of the President, National Security Council (NSC), Office of Management and Budget (OMB)), the media, and allies and partners. Leaders in the defense enterprise must take external risk into account carefully before implementation. *Implementation risk* is defined as those things that can derail a strategy, both the object of it (often an opponent) or the consequences of implementing the strategy. Using systems thinking helps determine the 2nd and 3rd order of effects which might derail a strategy that may not be evident. Implementation risk is often seen as, "where Clausewitz's famous observations about the fog of war and friction most readily come into play."[16]

Applying Risk to Force Structure Decisions

Similarly, senior defense leaders use the Strategic Choices Framework (see Figure 1 in Chapter 1) to determine how to balance resourcing Modernization, Force Structure, and Readiness to prepare the force for current or future threats. Leaders consider strategic guidance from the President, Secretary of Defense (SecDef), and Chairman of the Joint Chiefs of Staff (CJCS), funding and statutory guidance from Congress, the strategic environment, possible threats, and interests of allies and partners. Due to the tensions at the strategic level, leaders can

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[14] Mark F. Duckenfeld (department chair), *Theory of War and Strategy*, Academic Year 2018 course directive (Carlisle, PA: Department of National Security and Strategy, 2017), 5, https://www.armywarcollege.edu/documents/Directives/AY18%20Theory%20of%20War%20&%20Strategy%20Core%20Course.pdf.

[15] Duckenfeld, *Theory of War and Strategy*, 5.

[16] Duckenfeld, *Theory of War and Strategy*, 5.

rarely satisfy all requirements and must take and mitigate risks due to the insufficiency of resources (for example, funds, time, or industrial capacity).

Categories of Risk

Risk is hierarchical when viewed at the enterprise level. There are two levels of risk that defense managers must be concerned with: (1) *strategic risk*, defined as risk to national interests according to a nation's overall security strategy, and (2) *military risk*, risks associated with the implementation of a nation's defense or military strategy.[17] The defense enterprise's risk management processes and systems must aid leaders in defining and categorizing risks according to these levels for proper analysis, along with differentiating risks according to where the harm may be felt.

The U.S. example is illustrative. The CJCS's Joint Risk Analysis Methodology (Figure 8) defines and categorizes risk for U.S. defense leaders. The U.S. President, advised by the NSC, is primarily concerned with strategic risk. This includes threats to the national economy, the banking system, energy infrastructure, or stable/sustainable immigration. Meanwhile, the SecDef, CJCS, and the Joint Chiefs of Staff are concerned with military risk.

The Methodology also differentiates two targets of military risk: *risk-to-mission* and *risk-to-force*. Risk-to-mission is "the probability and consequence of planned and contingency events causing harm to current or future military objectives" and is primarily relevant at the tactical and operational levels.[18] Risk-to-force is "the probability and consequence of planned and contingency events causing harm to the provision and sustainment of sufficient military resources."[19]

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[17] Adapted from Chairman of the Joint Chiefs of Staff (CJCS), *Joint Risk Analysis Methodology*, CJCS Manual 3105.01B (Washington, DC: Joint Chiefs of Staff, 2023), A-2, https://www.jcs.mil/Portals/36/Documents/Library/Manuals/CJCSM%203105.01B.pdf. Hereafter *CJCSM 3105.01B*.

[18] *CJCSM 3105.01B*, C-8.

[19] *CJCSM 3105.01B*, C-8.

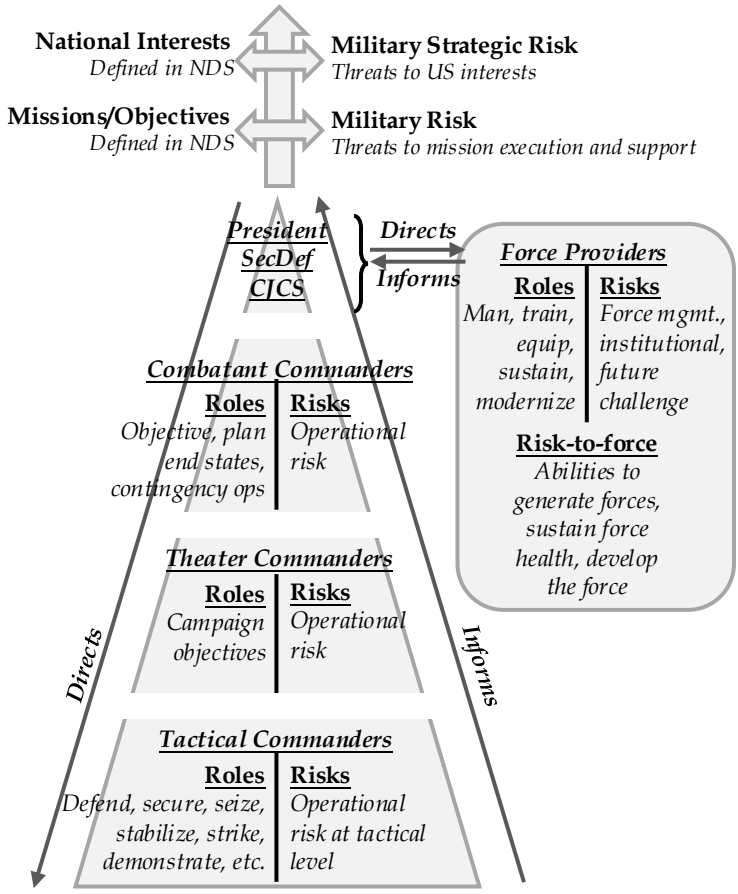

Figure 8. Joint Risk Analysis Methodology[20]

Two subsets of risk-to-force are force management risk and institutional risk. According to the Joint Staff definition, *force management risk* is "a function of the probability and consequence of not maintaining the appropriate force generation balance ("breaking the force")".[21] This is the ability of a service to meet current and future threats, either known (current operations or

[20] Adapted by authors from *CJCSM 3105.01B*, A-2.
[21] *CJCSM 3105.01B*, C-9.

approved contingency plans) or unknown. *Can a service execute a known mission if called upon immediately?* The choice of a force planning construct is an example of a force management risk decision. The current construct might be that the U.S. must be prepared to defeat a near-peer threat in large-scale combat operations while denying a different enemy's ability to achieve their objectives and simultaneously deterring other enemies from taking actions opposing U.S. national interests. Certain force structure decisions made to accommodate this construct may inhibit the U.S. from having the capacity or capability to conduct other operations.

Choosing a different construct could result in force structure decisions that affect the ability to do other important missions. When the U.S. pivoted to operations in the Indo-Pacific theater after twenty years of counterinsurgency/counter-terrorism operations in the Middle East, it drove force management decisions towards a focus on large-scale combat operations, multi-domain operations and an ability to defeat anti-access/area denial capabilities. These decisions, made in the context of the Strategic Choices Framework, meant that the Army had to pursue certain capabilities (air and missile defense, for example) while neglecting to pursue other needed capabilities that were not as relevant to large-scale combat operations in the Pacific. Because the Army budget was reduced relative to the other Services, these decisions also impacted unit training and readiness for other missions/operations.

The second element of risk-to-force is *institutional risk*, "a function of the probability and consequence of the DoD failing to perform established functions."[22] This can be reflected in the inability of the DoD to have a resilient organic industrial base able to reconstitute its munitions stockpile or depots or shipyards being unable to repair or fabricate parts for the force at hand. Another institutional risk involves the inability of the defense enterprise to expand its capacity or capability in response to a major national security event that threatens U.S. or allied vital

[22] *CJCSM 3105.01B*, C-9.

national interests. A very real example is the ability to fully mobilize both the Army Reserve and National Guard or to effect national mobilization through a draft/conscription.

Aggregated and Accumulated Risk

Outside of the categories of risk discussed above, senior leaders must also consider the *aggregation of risk*, defined as risk from multiple sources (e.g. risk-to-military, force management, institutional),[23] and the *accumulation of risk*, defined as risk over time in the context of previous related decisions.[24] An example of aggregated risk is the current situation involving decisions to prioritize the capabilities needed in Indo-Pacific theater at the expense of addressing other threats (e.g., Iran, North Korea, Russia) while Services are struggling to recruit for the force needed to staff these capabilities (i.e., presenting an institutional risk). Army and DoD leaders decided to reduce Army end strength to address recruiting shortfalls, a force management decision to bolster readiness that increased risk-to-mission, in the form of not having the capacity in the short term to satisfy mission requirements.

Accumulation of risk is more difficult to recognize or mitigate. Here are some examples to consider. When Chief of Staff of the Army, GEN Creighton Abrams decided to put significant support capabilities in the Army Reserve and National Guard so that national leaders would be forced to mobilize reserve forces for major military operations (like the Vietnam War).[25] The decision to reduce the size of the force at the end of the Cold War due to a change in the perceived threat compounded the shortages of such capabilities in subsequent decades. 30 years after the Abrams decision, shortages of support capabilities in the active force constrained defense leaders as operations in

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[23] *CJCSM 3105.01B*, B-3.

[24] Wade A. German and Heather S. Gregg, "Assessing Risk at the National Strategic Level: Visualization Tools for Military Planners," *Parameters* 51, no. 3 (Autumn 2021): 39-50.

[25] Conrad Crane and Gian Gentile, "Understanding the Abrams Doctrine: Myth Versus Reality," *War on the Rocks*, December 9, 2015, https://warontherocks.com/2015/12/understanding-the-abrams-doctrine-myth-versus-reality/.

Afghanistan and Iraq began, with SecDef Donald Rumsfeld telling Congress that such "high demand, low-density assets" produced unacceptable risk.[26] Decisions to use Army Reserve and National Guard forces as an operational reserve during the wars in Iraq and Afghanistan resulted in higher OPTEMPO for reserve component units over a decade which may have influenced reserve component recruiting and retention challenges that we are seeing today.[27]

Annual budget decisions that reduce spending on modernization programs or research and development have an accumulated effect that cannot be overcome by reasonable increases in later years. Earlier decisions affect commercial industry choices to reduce or eliminate their ability to build ships, airplanes, or other combat equipment that cannot be sold to other buyers. This has an outsized effect on smaller companies that are critical links in the supply chain for major systems. Once companies make these choices, an increase in later funding cannot recreate the capability that was lost.

Finally, a persistent focus on resourcing and providing capabilities to current operations at the expense of future force development results in an accumulated risk to the future force and future mission accomplishment.

Addressing Risk

Decision-makers have four options to deal with identified risks.[28] The first is to *accept* the risk. This entails understanding the risk and deciding not to change the actions that might incur it. This may be appropriate if the likelihood of encountering the risk is low or the consequences are not expected to affect mission accomplishment. The second option is to *avoid* the risk. This could mean altering a decision so that an unacceptable risk is not presented. Third is an option most military personnel are familiar

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[26] John T. Correll, "The Evolution of the Bush Doctrine," *Air & Space Forces Magazine*, February 1, 2003, https://www.airandspaceforces.com/article/0203evolution/.

[27] Christopher M. Schnaubelt, et al., *Sustaining the Army's Reserve Components as an Operational Force* (Santa Monica, CA: RAND Corporation, 2017), https://www.rand.org/pubs/research_reports/RR1495.html.

[28] *CJCSM 3105.01B*, B-8.

with, *mitigate* the risk. This means taking measures to lower the likelihood of the risk event or reducing its consequences to an acceptable level. The final option is to *transfer* the risk. This is "to take action to change where and when the risk is incurred and potentially who or what incurs it."[29] While in recent years, many officers infer that this means transferring the risk to subordinate organizations to protect senior officers or leaders from the personal or political consequences of risk, it can also involve policy or planning decisions to raise the risk to a higher level where it might be more easily absorbed.

Conclusion

U.S. Army War College and other Senior Service College graduates run their Services and nation's militaries. They must be cognizant that every decision, whether on policy or resources, is tied to risk. Understanding the correct terminology, definition, nature, and management of risk at the military, strategic, and institutional levels will aid leaders in making the best decisions within the defense enterprise. The nature of the rapidly changing strategic environment and the ever-changing character of war challenges senior and strategic leaders to balance risk in the present with the cost of policy change or investments for the future.

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[29] *CJCSM 3105.01B*, B-8.

7. Resource & Financial Management

Tom Galvin

> *Defense objectives are expressions of national policy. To be effective, defense objectives must be consonant with other policy objectives, affordable, and specific enough to guide resource allocation and management.*
>
> – C. Vance Gordon (2011)[1]

By any measure, militaries are expensive and consume significant resources both in peacetime and war. However, war introduces considerably greater uncertainty about the resources required to succeed, and the transition from peacetime to war involves more than just the flow of funds specified for that purpose. It includes the need to reorganize the national economy to support industrial production.[2] Thus there are two requirements for managing resources which may occur simultaneously. The first is to ensure the proper appropriation, allocation, and distribution of resources (personnel, materiel, and real property) to support peacetime preparations and the proper expansion of resources required to support mobilization for war.[3]

Each nation will organize its resource management processes differently, but there are common principles and approaches used across professional militaries that are relevant for senior leaders. This chapter will first define the defense resource management function and then present the key principles. This is followed by a generalized description of the program budgeting process used in most militaries for acquiring and distributing resources in the force. Attention will then turn to the monitoring function and the principles of financial management and auditing that enforce

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[1] C. Vance Gordon and Wade P. Hinkle (project leader), *Best Practices in Defense Resource Management*, Paper #D-4137 (Arlington, VA: Institute for Defense Analyses, 2011), iv.

[2] Analytic Sciences Corporation, *Resource Management: A Historical Perspective* (Washington, DC: Federal Emergency Management Agency, 1989), ES-2.

[3] Analytic Sciences Corporation, *Resource Management*, ES-1 – ES-4.

national policies and help combat problems such as fraud, waste, and abuse.

Definitions and Key Terms

The peacetime function has become more prominent over time as full mobilizations have become rare, such that militaries operate largely within their organic capabilities. Today, the term "resource management" is often associated with solely steady-state planning, programming, budgeting, and execution of resources allocated to defense to support the *organic force*—i.e., the force as designed (see Chapter 3). Hence in this chapter, *defense resource management* will focus on peacetime efforts to resource and sustain the organic force, including:

> *definition of mid- to long-term defense objectives, … plans to achieve those objectives, … the development and execution of annual budgets that implement the plans, [and] the collection and review of data on the results of actual expenditures and the adjustment of the plans*[4]

During times of peace, a defense enterprise may need personnel, materiel, or services beyond its organic capability. For example, during the COVID-19 pandemic, the U.S. Department of Defense was called upon to conduct "alternative care facilities" in convention centers and other large public and private facilities to support the initial waves of patients needing emergency care while providing the requisite distancing between patients.[5] The rapid influx of materiel to support such exceptional missions needed oversight to ensure the right items got to the right place.

Stewardship and oversight are two major themes of defense resource management. The processes of procuring and distributing goods and services are lucrative targets for fraud, waste, and abuse. Paraphrasing for general use, the U.S. defense

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[4] Gordon and Hinkle, *Best Practices*, iii.

[5] Terri Moon Cronk, "Army Corps of Engineers Creates Alternative Care Facilities," U.S. Department of Defense, March 27, 2020, https://www.defense.gov/News/News-Stories/Article/Article/2129022/army-corps-of-engineers-creates-alternative-care-facilities/.

enterprise defines these terms below. By exercising proper stewardship and oversight, defense managers strive to deter malign actors from perpetrating these activities and sustain the overall trust in the resource management enterprise.

Fraud is "Any intentional deception designed to unlawfully deprive the <nation> of something of value or to secure from the <nation> for an individual a benefit, privilege, allowance, or consideration to which he or she is not entitled."

Waste is "the extravagant, careless, or needless expenditure of government funds, or the consumption of government property that results from deficient practices, systems, controls, or decisions."

Abuse is "The intentional or improper use of government resources that can include the excessive or improper use of one's position, in a manner contrary to its rightful or legally intended use. Examples include misuse of rank, position, or authority or misuse of resources."[6]

History & Background in Brief

Before the contemporary approach of program budgeting, public-sector budgets were managed using the *line-item classification* system. The government would establish a requirement to buy goods or hire personnel, and this would occupy a 'line' on the ledger that would be satisfied by the expenditure of available funds. The officials would classify like items for ease of accountability such as personnel, office supplies, travel expenses, and so on, but there was limited integration of line items that collectively supported a holistic activity, such as the procurement of a weapon system (e.g., tank) that would involve many line items.[7]

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[6] Office of the Inspector General, *Inspector General Guide to Fraud, Waste, or Abuse Awareness* (Washington, DC: Department of the Air Force, 2014), 5, https://www.af.mil/Portals/1/documents/ig/FWA_Guide_Final.pdf

[7] Jesse Burkhead and Jerry Miner, *Public Expenditure* (New York, Palgrave Macmillan, 1971), 174-175.

During World War II, a different form of accounting emerged because of industrial expansion and the problems that emerged in the continuous production of aircraft, tanks, ships, and other vehicles. These major weapons systems could not be managed on a line-item basis as production was too complicated for the contemporary budgeting system. Expenditures were not only in terms of dollars but also critical raw materials such as copper and iron that were in short supply, forcing the U.S. to undertake scrap drives to supplement to production of steel and brass. Thus, decision-makers needed tools to properly distribute available raw materials to the right factories and continue production of the priority end items needed.[8]

Industry was also moving in this direction. For example, in the 1920s, General Motors (GM) developed what would become its *model year* concept. At any given time, GM was selling the cars made in the current model year, producing cars for the next model year, developing the models for the subsequent model year, and designing the models for two to three years into the future. The out-year designs would incorporate emerging technologies while also accounting for anticipated, though uncertain, changes in customers' tastes.[9]

These ideas—encapsulating activities rather than line items, managing the flow of resources over time, and emerging systems analysis tools and computing led to the development of *program budgeting* as the method of managing public sector expenditures and would replace the line-item classification system. Program budgeting (also known as *programming*) takes a systemic approach to procurement by looking at whole capabilities and the multitude of line items needed to field them.[10] Although other

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[8] David Novick, "Origin and History of Program Budgeting," (speech, RAND Corporation, 1966), https://apps.dtic.mil/sti/pdfs/AD0641442.pdf.

[9] Novick "Origin and History"; Alfred P. Sloan, Jr., *My Years with General Motors* (New York: Doubleday, 1963), 238-247.

[10] David Novick, "Introduction," in David Novick (ed.), *Program Budgeting: Program Analysis and the Federal Budget* (Harvard University Press, 1965).

types of budgeting systems have since evolved, each relies on programming as its output.[11]

Program Budgeting Systems

A *program budgeting system* is a decision support system designed to support the development and implementation of program budgets. Most nations use some form of program budgeting as the basis for their appropriation decisions as it provides leaders with the tools needed to procure and provide public goods and services while managing costs and planning for the future.[12]

Principles and Risks of Program Budgeting

The first such system was originally called the Planning, Programming, and Budgeting System (PPBS) which was established in the early 1960s by a team led by Robert McNamara. In the late 1950s, the U.S. DoD was hampered by cost overruns, significant waste, and overlapping and redundant weapons system procurements, most notably in long-range missiles.[13] McNamara established six principles of program budget systems that PPBS operationalized:

1. Decisions should be based on explicit criteria of national interest, not on compromises among institutional forces

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[11] In many nations and for most non-defense activities in the U.S., performance budgeting is used in its place. Performance budgeting emerged in the 1990s as an extension to program budgeting in which performance metrics and accountability are more explicitly specified within the budget. However, performance budgeting works best for predominantly steady-state operations where the procurement of commercial goods and services replaces investment in proprietary weapons systems or end items such as done in many militaries. Thus, performance metrics are simpler and more feasible to calculate on an annual basis. Jack Diamond, From Program to Performance Budgeting: The Challenge for Emerging Market Economies (Washington, DC: International Monetary Fund, 2003).

[12] Dong Yeon Kim et al., "Paths Toward Successful Introduction of Program Budgeting in Korea," in John S. Kim (ed.), *From Line-item to Program Budgeting: Global Lessons and the Korean Case* (Seoul, ROK: Korea Institute of Public Finance, 2007), 47; William F. West, *Program Budgeting and the Performance Movement: The Elusive Quest for Efficiency in Government* (Washington, DC: Georgetown Univ. Press, 2011), 12-13.

[13] J. Ronald Fox, *Defense Acquisition Reform 1960-2009: An Elusive Goal*, CMH Pub 51-3-1 (Washington, DC: Center for Military History, 2011), 36, https://history.defense.gov/Portals/70/Documents/acquisition_pub/CMH_Pub_51-3-1.pdf.

2. Needs and costs should be considered together
3. Major decisions should be made by choices among explicit, balanced, feasible alternatives
4. Active analytic staff provide leaders with relevant data and unbiased perspectives
5. Multi-year force and financial plans should project the consequences of contemporary decisions into the future
6. Open and explicit analysis forms the basis for major decisions[14]

However, no program budgeting system is immune to potential failure, meaning that the resultant government spending does not properly serve the needs of the public in accordance with strategy documents or becomes contaminated by uncontrollable fraud, waste, and abuse—in other words, systemic corruption. In examining the first 50 years of PPBS' history, Gordon & Hinkle (2011) identified five recognizable "paths to failure": (1) planning that fails to adequately consider resource impacts, (2) flawed design of planning, budgeting, financial, or performance systems, (3) partial or biased defense testimonies that improperly influenced national budgetary decisions, (4) launching programs known in advance to be unaffordable, and (5) the lack of a suitably talented staff capable of providing independent analyses.[15] While it would seem obvious that the enterprise should take steps to avoid these pitfalls, it requires investment of personnel and additional systems of monitoring, analysis, and checks and balances to do so. This unfortunately risks making the overall system more bureaucratic and less efficient. Thus, risk management must also be incorporated into program budgeting whereby leaders can foster flexibility and adaptability while protecting the enterprise from poor decisions or misallocation of resources.

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[14] Alain C. Enthoven and K. Wayne Smith, *How Much is Enough? Shaping the Defense Program, 1961-1969* (New York: Harper & Row, Publishers, Inc., 1971), republished (Santa Monica, CA: RAND, 2005).

[15] Gordon and Hinkle, *Best Practices*, 2.

The Program as the Primary Unit of Analysis

Each nation may view program budgeting differently and will vary in its interpretation of principles and perceptions of risk. However, the mechanics of program budgeting systems are generally consistent across nations. The unit of analysis is the *program* which, according to defense scholar William F. West, encapsulates "activities and spending in terms of their contributions to organizational goals," and is structured to allow "decision makers to compare different activities and units that serve common goals."[16] Programs help to keep plans within fiscal constraints and to cause annual budgets to follow strategies and plans to pursue validated requirements or objectives.[17]

Among democratic governments, programs serve four main purposes. First, programs are *tools of policy analysis,* whereby program budgeting facilitates comparison and evaluation of the cost-effectiveness of alternative spending options that have the same objectives. [18] Originally, programming was primarily used for policy analysis, ensuring that the portfolio of programs in each service was aligned with their assigned roles and missions.[19]

The second purpose is as a *means of improving government performance* by giving managers operating discretion.[20] This is very relevant for defense managers. Rather than legislatures dictating precisely where each dollar goes, they provide broad authorities that encapsulate activities involving a particular role or mission. Thus, program budgeting allows flexibility as plans change or implementation runs into difficulties.[21]

The other purposes are to *facilitate accounting for the full cost of government activities* and *enable the government to plan and set*

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[16] West, *Program Budgeting*, 10.

[17] Charles J. Hitch, "The new approach to management in the US Defense Department," *Management Science* 9, no. 1 (October 1962): 1-8.

[18] Kim et al., "Paths Toward Successful Introduction," 47; West, *Program Budgeting*, 12-13 is consistent with this view.

[19] West, *Program Budgeting*, 12.

[20] Kim et al., "Paths Toward Successful Introduction," 47; West, *Program Budgeting*, 12-13.

[21] Allen Schick, "The Road to PPB: The Stages of Budget Reform," *Public Administration Review* 26, no. 4 (December 1966): 243-258, 251-252.

spending priorities.[22] When it comes to stewardship of the taxpayers' resources, a seemingly simple question arises -- Is a particular program successful or is it failing? Many defense programs have experienced cost overruns, delays, or underperformance when employed in operations. However, the notion of success or failure is often difficult to assess due to the complexity and risks involved in defining and executing programs. That success or failure is as much a political assessment as it is economic.

From Plans to Execution

For militaries using program budgeting, there are generally four functions performed as shown in Figure 9. Each defense enterprise will organize its program budgeting systems differently, perhaps collapsing some functions into one (for example, programming and budgeting might be treated as one activity[23]). The below is representative of the contemporary U.S. Planning, Programming, Budgeting, and Execution system that evolved from the original PPBS, whereby different staff elements perform each function. It is important to recognize the products that pass from one function to the next.

Planning. The purpose of planning is to take national and defense strategy documents and identify the required capabilities and capacities the military needs over the long term (e.g., 5-25 years).[24] One common approach is to perform capabilities-based planning in which military planners develop scenarios representing the types of operations the force would have to perform. By exercising those scenarios, planners determine which capabilities the military has on hand in sufficient quantities and therefore what gaps remain. These are converted into capability requirements.[25] Other requirements can come in the form of

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[22] Kim et al., "Paths Toward Successful Introduction," 47.

[23] Kim et al., "Paths Toward Successful Introduction."

[24] Army Force Management School, *Department of Defense Planning, Programming, Budgeting, and Execution (PPBE) Process / Army Planning, Programming, Budgeting, and Execution (PPBE) Process: An Executive Primer* (Fort Lee, VA: Army Force Management School, 2012), 5. Hereafter *PPBE Primer*.

[25] Thomas P. Galvin, *Capabilities-Based Planning: Experiential Activity Book* (Carlisle, PA: School of Strategic Landpower, 2023), 49-60.

procurements such as purchases for computers or other information technologies that require occasional replacements or upgrades, facility construction and base operations, training equipment and real property (e.g., ranges), and sustainment (e.g., fuel, repair parts).[26] The output is a defense enterprise plan.[27]

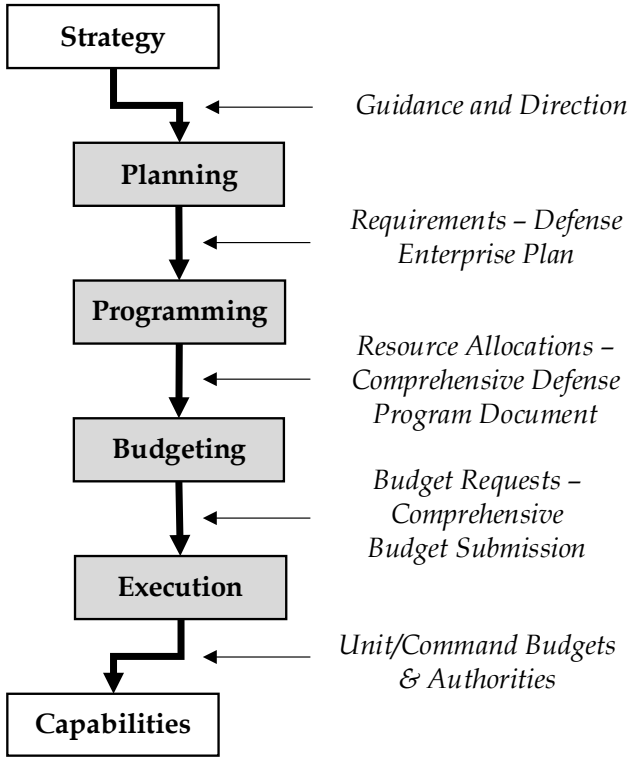

Figure 9. Phases of PPBE[28]

[26] *PPBE Primer*, 9.

[27] As an example, for the U.S. Army this is divided into four documents under the Army Strategic Planning System (ASPS): the Army Strategy, the Army Campaign Plan, the Army Planning Guidance, and the Programming Guidance Memorandum. These documents were formerly integrated into a single *The Army Plan* but this has been superseded as of FY23. See Paul Melody, "Strategy and Strategic Direction," in Lou Yuengert (editor), *How the Army Runs 2023-2027: A Senior Leader Reference Handbook* (Carlisle, PA: US Army War College, 2025), para. 3-32.

[28] Original graphic by author.

Programming. This phase encapsulates "actions to produce combat capability by the timely and balanced allocation of resources and integration of programs."[29] Programmers interpret guidance from the plan and convert it into detailed allocations of resources to programs. It includes dividing requirements into categories by which selected experts can assess the validity and scope of the requirements, prioritization, resource allocation over a set period, and re-aggregation into a consolidated program portfolio as shown in Figure 10.[30]

One can divide the requirements in multiple ways, such as like type, like function, or by organization. *Like type* might involve divisions of major capabilities such as ships, tanks, wheeled vehicles, aviation, signal, engineering, and so on. *Like functions* could be capabilities that contribute to a major enterprise activity such as equipping or training. *By organization* divides capabilities by service, component, or major command. The U.S. has in its history used all three.[31] Each group would produce a consolidated recommendation for the requirements under their purview such as which would receive resources and how those allocations are set over time (for example, in the U.S. it is programmed over five fiscal years). These group recommendations are then consolidated into one master list, re-prioritized, and sent forward for review and approval by enterprise leaders. The output of programming is a comprehensive defense program document.[32]

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[29] *PPBE Primer*, 7.

[30] Leslie Lewis et al., *Improving the Army Planning, Programming, Budgeting, and Execution System (PPBES): The Programming Phase* (Santa Monica, CA: RAND Corporation, 1999), 6. Hereafter *Improving PPBES*.

[31] Currently, the division of labor is performed by Program Evaluation Groups according to 'like function,' specifically, six functions established in statute – organizing, manning, training, equipping, sustaining, and installations. These were instituted in 1998 to replace the former fourteen PEGs that constituted a mix of 'like type' (e.g., information management, medical, military construction & housing), 'by organization' (e.g., National Guard, Army Reserves, intelligence), and 'by function' (administration, base operations). *Improving PPBES*, 6.

[32] In the US system, this is called a Program Objective Memorandum (POM).

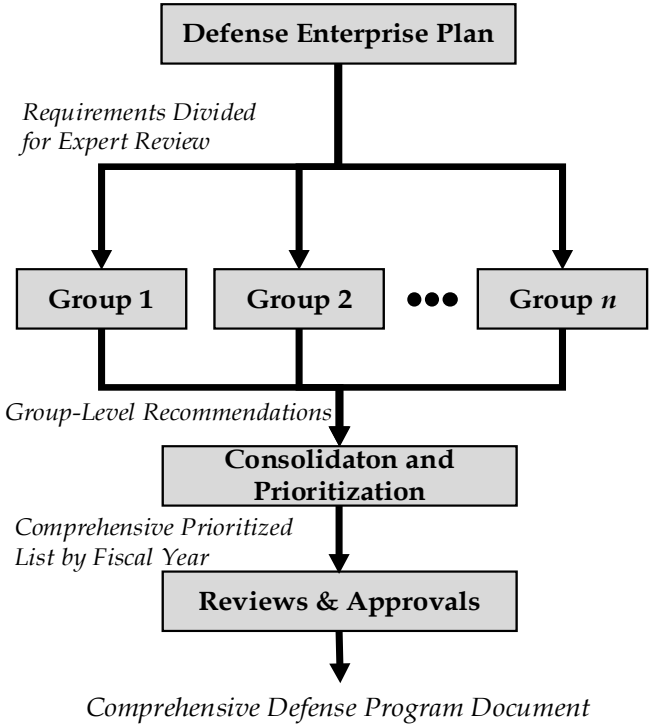

Figure 10. Developing Programs & Budgets[33]

Budgeting. Budgeting crunches the numbers and assigns funding estimates to each item in the comprehensive defense program, then helps build the narrative to justify the expenditures to the legislature or appropriating body. Budgeting is functionally interdependent with programming, operating with the same information but from the perspective of the legislature and how it divides (or "colors") the money. Figure 11 shows a notional example of how programming and budgeting differ.[34] The result of budgeting should be a comprehensive budget submission

[33] Adapted from unpublished course materials in the Defense Management course, US Army War College.

[34] Based on *PPBE Primer*, 11. In cases where the legislature appropriates according to the way the defense enterprise establishes its programs, one could theoretically collapse programming and budgeting into one phase.

document that leads to an appropriation with the requisite authorities and responsibilities for the defense enterprise to execute.[35]

Budgeteer's View -- *by appropriation*	Programmer's View -- *by capability*			
		New Tank	**New IT System**	**Ship Upgrade**
	Research	$$	$	$
	Procure-ment	$$$	$$$	
	Construc-tion	$$		$
	Sustain-ment	$$$	$	$$$

Figure 11. Comparing Views of Programs Over Time[36]

Execution. Execution is when the appropriations are delivered to the enterprise for the fiscal year and then allocated to the military units and commands. The appropriations may not match the budget submission – that is, the legislature may deviate from the defense leaders' recommendation, in which case defense leaders must adjust the internal programs and budgets to match. The following section will describe budget execution in more detail.

[35] In the U.S. system, this is called a Budget Estimate Submission (BES) and is normally developed concurrently with the POM.

[36] Adapted from course materials in the Defense Management course, US Army War College.

Budget Execution and Financial Management

The risks and uncertainties affecting programming and budgeting influence the extent to which the defense enterprise can spend ("execute") its budget. However, execution across the defense enterprise is more than just spending money. There must be assurances that the funds are spent properly and that all the funds are either spent or reallocated by the end of the fiscal year or another period established per the appropriations. Defense leaders could be held accountable when this does not occur. The systems and processes used to enforce the proper expenditure of funds are called *financial management* and include:

Financial management includes the following considerations:

- Estimating capital requirements (such as facilities, infrastructure, and logistics) and developing unit budgets
- Asset visibility (proper accounting of all assets on hand and their conditions)
- Managing and collecting debts
- Redistributions of surplus and reprogramming decisions to address shortfalls in programs
- Managing cash flow and proper rate of expenditures
- Exercising internal financial controls. For example, no money should serve any purpose other than to generate the required government service.[37]

Private and public-sector financial management is qualitatively different, which is why attempts at importing private-sector methods into public-sector organizations rarely succeed. To understand why, one must recognize how allocative efficiency drives public sector behaviors.

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[37] Department of Defense, *Financial Management Regulation*, DoD Directive 7000.14-R, Volume 1, Chapter 1 (Washington, DC: Department of Defense, December 2020); Defense Financial and Accounting Service, "Financial Management," https://www.dfas.mil/TEST-PAGES/Archived-Careers/careerpaths/finance/; Financial Management – Meaning, Objectives, and Functions," *Management Study Guide*, https://www.managementstudyguide.com/financial-management.htm.

Allocative Efficiency

Military organizations as government bureaucracies emphasize *efficiency*, but efficiency takes many different forms.[38] The general meaning of efficiency is that goods and services are produced/provided faster, cheaper, and better by the organization.[39] In the private sector, pursuing efficiency is a factor of competitive advantage. But because the public sector does not compete directly against private sector firms, it uses a different framework for matters of efficiency – dividing it into two forms, *technical efficiency* and *allocative efficiency*.[40] The former is easy to grasp. A public sector operation is *technically efficient* when it performs government functions at least cost, or to the maximum extent at the same cost, or some combination of the two.[41]

Meanwhile, an organization is *allocatively efficient* when in advance the budget and the amounts of goods and services are matched such that they also match in execution. In other words, supply and demand are equal throughout both the budgeting and execution phases. To illustrate this, consider the example of a common government service—issuing driver's licenses. If the annual demand is 10,000 licenses and a nation's driver's licensing centers are resourced to produce precisely 10,000 licenses a year, then that activity would be considered allocatively efficient. Inefficiencies arise when demand exceeds supply, such that the offices must turn people away, or when supply exceeds demand whereby workers are left idle for periods at a time, thereby rendering the activity over-resourced and resources should be allocative efficiency is highly unlikely as it requires both the supply and demand to be predictable, which is unrealistic. Thus,

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[38] Thomas P. Galvin, "Centralization and the Inefficient Quest for Efficiency," *Talking About Organizations Podcast*, May 31, 2018, https://www.talkingaboutorganizations.com/e43x/.

[39] Robert Swisher, "Fast, Good, or Cheap. Pick Three?" *Business.com,* February 22, 2017, https://www.business.com/articles/fast-good-cheap-pick-three/.

[40] See OER Services, "Macroeconomics: Reading – Productive Efficiency and Allocative Efficiency," *LumenLearning.com,* https://courses.lumenlearning.com/suny-macroeconomics/chapter/reading-productive-efficiency-and-allocative-efficiency/.

[41] Stephen Aldridge, Angus Hawkins, and Cody Xuereb, "Improving Public Sector Efficiency to Deliver a Smarter State," *Civil Service Quarterly @GOV.UK,* January 25, 2016, https://quarterly.blog.gov.uk/2016/01/25/improving-public-sector-efficiency-to-deliver-a-smarter-state/.

agencies need some degree of flexibility to respond to contingencies, such as unanticipated surges and drops in demand. Otherwise, the agency would have to request authorities from appropriate stakeholders to reallocate resources which often incur significant transaction costs.[42]

There are two potential side effects of adhering to allocative efficiency but leading to behaviors that can be difficult to justify as conforming to the proper use of resources. First, if an activity is overallocated, this could cause future budgets to be reduced so funds are available elsewhere. Losing one's budget is usually punished rather than rewarded as it is culturally treated as a sign of a failed or poorly planned program rather than a beneficial move to save government money. At worst, efficiency could lead to the curtailment of services or loss of jobs. Hence, the second side effect—perverse incentives to spend any excess money at the end of the fiscal year rather than having to transfer it to another activity or return it to a treasury.[43]

Principles of Financial Management Systems

Financial management systems are decision support systems (see Chapter 9) that help organizations satisfy the requirements of financial management. They provide the necessary controls, checks and balances, and accountability. *Internal controls* are a feature of such systems and include recordkeeping and safeguards against fraud and waste. For example, in the U.S. Government, internal controls serve three main purposes: (1) ensuring the effectiveness and efficiency of operations, (2) providing reliable fiscal reporting to stakeholders, and (3) compliance with laws and regulations.[44]

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[42] Not just in terms of funds, but also political costs (e.g., leaders having to explain the inaccuracies of their forecasts), lag times for resource reallocations to take effect, and potential disruptions to operations.

[43] In the end, allocative efficiency is a myth, as demand for public goods and services will always exceed supply.

[44] U.S. Government Accountability Office, *FINANCIAL MANAGEMENT: Effective Internal Control is Key to Improving Accountability*, Report #GAO-05-321T (Washington, DC: U.S. Government Accountability Office, 2005).

Internal controls also help leaders and financial management determine the appropriate use of resources through general *cost principles*. In the U.S. government, the Office of Management and Budget (OMB) establishes cost principles regarding expenditures by both federal government agencies and those organizations using federal funds such as educational institutions and non-profit organizations.[45]

Cost principles might include, using the U.S. system as an example, allowable costs, and reasonable costs. An *allowable cost* is one proven necessary for mission performance and therefore suitable for government expenditure or reimbursement. For example, government-provided funds could be allowed for use by educational institutions for communications, labor relations, and certain administration costs; while commencement costs, alcoholic beverages, and housing and personal living expenses might not be. Government official travel is another example where policies may establish which claimed expenses as allowable and therefore reimbursable to the traveler and which are not.[46] A *reasonable cost* regards the amount paid for a good or service. Policy guidelines may establish rules regarding how the cost incurred compares with the market, expectations of using the lowest cost option, or that the purchase must be made in good faith (e.g., the purchase is not being made to cover costs incurred from one's mistakes or omissions).[47]

Implications for Defense Managers

The complexity of defense resource management becomes clear when considering the totality of a defense budget. The aggregation of numerous programs, each operating on its own timeline and outcomes, complicates decision-making.

For example, consider the costs of information technologies (IT) and cybersecurity. DoD spending on IT rose incrementally

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[45] For example, Office of Management and Budget, *Compliance Supplement*, 2 CFR Part 200, Appendix XI (Washington, DC: The White House, 2019), § 3.1 and 3.2, https://www.whitehouse.gov/wp-content/uploads/2019/07/2-CFR_Part-200_Appendix-XI_Compliance-Supplement_2019_FINAL_07.01.19.pdf.

[46] OMB, *Compliance Supplement* § 3.1.

[47] 2 U.S.C. § 404.

from 2016 to 2018, but a significant portion of the budget is spent on 'legacy' systems, that "maintain agencies' existing IT investments."[48] This does not adequately cover the significant investments needed to modernize IT in the face of ever-growing cyber threats.[49] Another example is the increasing costs of natural disasters hitting the U.S. – e.g., hurricanes and storms, wildfires, tornadoes, droughts, and periods of extreme temperature. While federal agencies are budgeted to provide emergency response and disaster relief, these allocations are usually short, and supplemental appropriations have been required ($120B in 2017-2018 alone, including $17.4B to the Army Corps of Engineers).[50] Still, some federal agencies including DoD have had to tap into their budgets to support such relief efforts.

This highlights the persistent challenge of relying on the principle of allocative efficiency for programming, budgeting, and execution. It assumes reliable knowledge of the demand for services in advance so that funding can be applied to match. The complex and dynamic strategic environment makes such knowledge elusive. So, the question becomes how much risk is one willing to take in programming? If too little is allocated, there is a risk of having to pursue supplemental appropriations, reallocate within programs, or simply eat emergencies out of one's budget. If it appears that too much is allocated (e.g., an emergency has not happened during the execution year), there is a risk of funds becoming misused or wasted, or of funds being taken away for other programs. Thus, a common approach to budgeting is to baseline the annual costs of a particular activity and adjust them incrementally according to what sounds reasonable given the overall budget. What was allocated last year might be increased to cover the costs of inflation, for example. Or an overall budget

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[48] The White House, *2018 Federal Budget* (Washington, DC: The White House, 2018), Section 16.

[49] Charlie Osborne, "Lack of Funding Exposes US Federal Agencies to High Data Breach Risks," *ZDNet,* February 22, 2018, https://www.zdnet.com/article/us-suffers-highest-data-breaches-of-government-agencies-worldwide/

[50] Rocio Cara Labrador, "U.S. Disaster Relief at Home and Abroad," *Council on Foreign Relations*, August 15, 2018, https://www.cfr.org/backgrounder/us-disaster-relief-home-and-abroad.

cut will result in a reduction of the same percentage across all activity budgets.

The budget levels should cause enterprise leaders to establish and enforce policies and guidelines that govern (or constrain) member actions. One example is an ongoing effort by DoD to enforce stricter controls over conference spending to include reductions in DoD members attending conferences (especially those not hosted by DoD), cancellation or consolidation of non-essential conference events, and mandatory reliance on telecommunication as a substitute means for collaboration and training.[51] Policies in effect since 2012 include additional requirements to justify travel authorization requests and elevated approval authorities for conference hosting and attendance.[52]

The reasons for imposing such controls included increased budget uncertainty, which necessarily limits how much travel is allocated to other Department activities, and instances of fraud, waste, and abuse. A prime example of the latter was the aftermath of a 2010 scandal involving members of the General Services Administration who misused government travel funds with respect to an annual convention held in Las Vegas.[53] News of lavish meals, excessive gifts, and improper use of contracted services resulted in a one-year investigation that led to the dismissal or resignation of several senior GSA officials and brought about significant policy changes government-wide.[54]

Although laudable, policy changes often have side effects. In the above case, critics have alleged that the second-order effects of stricter travel policies had a significant negative impact on

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[51] U.S. Department of Defense Chief Management Officer, "DoD Conference Policies and Controls," *CMO.Defense.gov*, https://cmo.defense.gov/Products-and-Services/DoD-Conference-Policies-and-Controls/.

[52] DoD CIO, "DoD Conference Policies."

[53] Lisa Rein and Joe Davidson, "GSA Chief Resigns Amid Reports of Excessive Spending," *Washington Post,* April 2, 2012, https://www.washingtonpost.com/politics/gsa-chief-resigns-amid-reports-of-excessive-spending/2012/04/02/gIQABLNNrS_story.html?utm_term=.53611a9c3707.

[54] Lisa Rein, "What Happened with the GSA in Vegas Stymies Federal Workers," *Washington Post,* February 8, 2015, https://www.washingtonpost.com/politics/clampdown-after-gsa-scandal-puts-some-federal-workers-in-a-pinch/2015/02/08/d8217240-a5a4-11e4-a7c2-03d37af98440_story.html?utm_term=.b0bada30df99.

other government employees fulfilling their duties, and the costs of enforcing such policies have more than offset any anticipated cost savings.[55] For example, the additional approvals needed can cause delays in finalizing air travel, during which time the airfare can dramatically increase, especially if approval comes late.[56]

Enterprise-level policies can also add hidden costs to individual transactions, essentially shifting the costs in time and money to members. For example, a decision to elevate approval authorities for defense travel can incur hidden costs associated with increased time to process travel authorizations or a change to acquisition regulations might place additional burdens on vendors, increasing their costs of doing business and therefore passing on higher costs to the government. Or, the ineffectiveness of individual transactions (e.g., systemic pay problems) could be underwritten at the policy level because they might incur no specific tangible costs, rather the risks (time and money) are passed on to the individual service member. These costs can be overlooked because personnel is viewed as a sunk cost – meaning that the amount of funds spent on manpower does not change no matter how the time is spent. This highlights challenges with allocative efficiency – costs that do not bring about changes in cash flow are overlooked.

What is the impact? According to a McKinsey and Co. study of government transformation efforts, budget cuts alone do not provide a useful forcing function for change.[57] Reliance on cutting budgets can have the opposite effect, where the hidden costs of these cuts eventually emerge as actual costs – which could include offsets to savings realized, increased demands on individual members leading to burnout and turnover, increased errors and associated liabilities, or overuse and degradation of facilities and

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[55] Lisa Rein, "The Federal Government is Spending a Lot of Money Trying Not to Spend Money on Travel," *Washington Post*, March 23, 2015, https://www.washingtonpost.com/news/federal-eye/wp/2015/03/23/consequences-of-the-federal-travel-clampdown-more-costs/?utm_term=.59e8bcb059ef.

[56] Rein, "Federal Government is Spending."

[57] Tera Allas, Roland Dillon, and Vasudha Gupta, "A Smarter Approach to Cost Reduction in the Public Sector," *McKinsey & Company*, https://www.mckinsey.com/industries/public-sector/our-insights/a-smarter-approach-to-cost-reduction-in-the-public-sector.

infrastructure.[58] Centralization of an activity to increase efficiency is particularly prone to significant hidden costs, especially when the centralized authority fails to take into account the context of each transaction and does not show the same levels of urgency in performing such transactions.[59]

It is therefore important to think critically about claims of cost savings due to a particular proposed policy or programming change. Cost savings should constitute a net reduction in the overall expenditure of an activity, *including the realization of hidden costs associated with the change*. Again, there is no right answer on how to allocate funds properly given the increasing demand for public services, including national security, against greater budgetary uncertainty. The urgency to act against a budget may well overcome any efforts at developing prudent solutions for spending challenges.

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[58] For example, see Robert S. Kaplan and Derek A. Haas, "How Not to Cut Health Care Costs," *Harvard Business Review 92,* no. 11 (November 2014): 116-122.

[59] Galvin, "Centralization."

8. People as a Resource

Bob Bradford & Lou Yuengert

> *People are the United States Army's greatest strength and most important weapon system, and it is because of our people – our Soldiers, Families, Army Civilians, veteran Soldiers for Life, and retirees – that we were ready to respond to … crises.*
>
> -- U.S. Army Chief of Staff General James C. McConville[1]

Militaries require large numbers of people to accomplish their missions. People fly the planes, sail the ships, drive the tanks, fire the weapons, launch and control the satellites, write the code, collect and analyze the intelligence, drive the trucks, cook the food, fix the equipment, and train the new service members. People design and organize the force, determine the requirements, acquire the equipment, allocate the resources, develop the people, and lead and manage the enterprise. People accomplish a wide variety of tasks in support of national security. As one of the world's largest militaries, the U.S. Department of Defense has over 3.4 million people on its payroll.[2] Paying all of these people accounts for a significant portion of the $853 billion defense budget. As an example, in FY23, military and civilian pay accounted for over 31% of the total U.S. defense budget,[3] but this can vary significantly among the services.[4] Because of the importance and cost of people in defense organizations,

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[1] James C. McConville, "People First: Insights from the Army's Chief of Staff," *Army.mil*, February 16, 2021, https://www.army.mil/article/243026/people_first_insights_from_the_armys_chief_of_staff.

[2] World Population Review, "Military Size by Country 2023," https://worldpopulationreview.com/country-rankings/military-size-by-country; U.S. Department of Defense, "About," https://www.defense.gov/About/.

[3] Office of the Undersecretary of Defense, Comptroller, *National Defense Budget Estimates for 2024*, "Table 6-2: Department of Defense TOA by Category," (Washington, DC: Department of Defense, May 2023), 94, https://comptroller.defense.gov/Portals/45/Documents/defbudget/FY2024/FY24_Green_Book.pdf. Hereafter "*Green Book*."

[4] For example, *Green Book* showed that the US Army alone accounted for more than 50% of the total military and civilian pay in FY23.

enterprise leaders must understand the nuances and challenges of managing people as a resource.

As militaries design and field their forces, they must identify personnel requirements, and then acquire, develop, and allocate people to fill those requirements. This distinction between requirements, or *spaces*, and actual people, or *faces* is important. For example, a battalion at Fort Cavazos may have authorizations for three wheeled-vehicle mechanics at the rank of staff sergeant to accomplish its mission, but the personnel system still must fill those spaces with people, otherwise the battalion is unready.

Decisions about spaces and faces normally reside in different parts of the defense enterprise. Spaces are the realm of manpower management, which is closely linked to force management, covered in Chapter 3. Allocating spaces to units is about laying out the chairs for a game of musical chairs. Faces are the realm of personnel management.[5] Assigning faces is about working to acquire, train, and allocate actual people to fit in each chair.[6] Both spaces and faces are important considerations and problems occur when spaces and faces are not aligned. This chapter provides an overview of both aspects and describes some guiding principles to help enterprise leaders. It also discusses the realm of talent management, better use of information about individual people can improve applying their knowledge and skills for the organization's betterment.

Determine requirements (spaces)

An important first step in designing an organization is determining what tasks the organization needs to do, how it will accomplish those tasks, and what resources are required to complete them. Among the resource considerations are the people needed to support the organization's mission. When designing or

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[5] In the US system, spaces are normally handled by a G-8 (or other service equivalent) in concert with the G-3, whereas faces are a G-1 responsibility.

[6] Musical chair analogy from Thomas Schelling, *Micromotives and Macrobehavior* (New York: Norton, 1978), as cited in Eli Alford, James Lynch, and Thomas Seamands, *The Army Unit Manning System: In Pursuit of Irreversible Momentum* (Arlington, VA: AUSA Special Report 2003) 20 https://www.ausa.org/sites/default/files/SR-2003-The-Army-Unit-Manning-System-In-Pursuit-of-Irreversible-Momentum.pdf.

modifying organizations, Services lead analysis to determine the manpower required to meet the mission. Within the DoD, the guiding policy for determining an organization's manpower requirements is the identification of the spaces needed to accomplish military objectives with the *minimum* manpower organized to *maximize* effectiveness and combat power.[7] Services strive to design units that are effective and efficient, without any excess people. A unit's manpower requirements are based on workload assessments of the required tasks and how many people with what skills an organization needs to accomplish its tasks. An output of workload analysis is the required number of people with different specific skills needed for the unit to accomplish its tasks.

One limiting factor when designing units that make up a force is that the total number of military people in a Service is capped. Congress directs the maximum number of uniformed military service members in each Service at the end of the fiscal year in the annual National Defense Authorization Act (NDAA). These "end strength" numbers constrain manpower management. Complicating these are deliberate management decisions to further constrain the number of authorizations (spaces) by subtracting the anticipated number of service members that will be non-deployable or non-employable for periods of time. The US active Army, for example, segregates soldiers in training (Trainees), in transit between units (Transients), or on a non-available status such as prisoners (Holdees) and schools (Students) (TTHS) from the end strength. This ensures a reasonable chance that the Service will be able to fill its authorizations with available faces. Each of the Services' manpower requirements is constrained by authorized end strength, and new manpower requirements must compete for space inside the authorized number. The fact that building new units often requires cutting or reorganizing existing units makes

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[7] Department of Defense, *Guidance for Manpower Management*, DoD Directive 1100.04, (Washington, DC: Under Secretary of Defense for Personnel and Readiness, February 12, 2015), 2, https://www.esd.whs.mil/Portals/54/Documents/DD/issuances/dodd/110004p.pdf. Hereafter *DoDD 1100.04*.

strong justifications and powerful champions even more important.

Matching faces to spaces is only part of the story. Leaders must design the force so that service members have a path to success such as opportunities for promotion and career enhancement. Otherwise, members can become frustrated or unfulfilled and potentially leave the service. Because military manning is a pipeline model that does not allow for much lateral entry, Services must build a structure that allows for the right mix of junior and senior spaces. Too many senior spaces without junior positions can result in shortages at senior levels, while an imbalance the other way may result in poor opportunities to advance which impacts morale and retention behavior.

Services take their organizational designs and try to combine them to build the most effective force within the topline constraints. Here is where the driving principle is important. If the Service is not ruthless in ensuring each organization is designed with the minimum required manpower, it might field fewer units than it may need. Services have different ways to determine the best mix of forces within specific constraints.

Sourcing (contract or government? civ or mil? active or reserve?)

One consideration when building requirements is how to source each position — with a contractor, government civilian, or uniformed military member (active, reserve, or national guard). Each source has advantages and disadvantages and there are specific challenges with each. The guiding DoD policy for this choice is that "assigned missions shall be accomplished using the least costly mix of personnel (military, civilian, and contract) consistent with military requirements and other needs of the Department."[8]

An important idea in sourcing decisions is that inherently governmental tasks like commanding military forces, allocating government resources, and managing government employees

[8] *DoDD 1100.04*, 3.

cannot be contracted out and must be done by government employees, either civilian or military.[9] Military personnel are the best source when jobs require military knowledge or skills; when required by law, policy, treaty, or agreement; to better enable command and control, mitigate risk, or enhance esprit de corps; or when positions are needed to help military rotation or career development; or when unusual working conditions or costs make civilian positions inappropriate.[10] Within the uniformed military, choices of whether to make the requirement active, reserve, or national guard are influenced by the role of the unit, how much time is available to get them ready for contingencies, other force management issues, budget constraints, and by which component has room under its allocated end strength.

Civilian personnel may be the best source when the tasks do not require military personnel (as detailed above) when the tasks are inherently governmental (allocating resources, managing government employees), and when there is a need for a sustained effort over a long period. The government invests in civilian employees to guarantee certain capabilities for the long term. Contractors are the best source for unique skills required for a shorter period. Contractors are generally more expensive in the short term but offer more flexibility with less investment in training or other benefits.

Personnel management (acquire, train, allocate, develop, promote)

While manpower management is about spaces, personnel management is about acquiring, training, developing, and allocating faces. One of the most important national choices is how to man the military. Options include conscripts through a draft, the recruitment of volunteers, contracting a force, and any combination of the above. Conscript forces tend to be less

[9] Federal Acquisition Regulation (FAR), subpart 7.5, effective June 2, 2023, https://www.acquisition.gov/far/subpart-7.5.

[10] Department of Defense Instruction (DoDI) 1100.22, *Policy and Procedures for Determining Workforce Mix*, (Washington DC: Department of Defense, April 12, 2012 with change 1, December 1, 2017), paragraph 4.f, https://www.esd.whs.mil/portals/54/documents/dd/issuances/dodi/110022p.pdf.

expensive, as they can be paid less than volunteers, there is less investment in training and education, and there is no need for a large recruiting infrastructure. However, conscription can often be plagued with problems of unfairness. Militaries may not need every candidate who is eligible to serve, and so will need some way of deciding who to accept. This always raises concerns about the process used to select conscripts or exempt others from selection.

Armies recruited from volunteers from the population tend to be more professional but pose other challenges. To attract sufficient numbers of volunteers who meet the minimum standards required for a professional force, Militaries often must compete in the civilian marketplace. This may require extensive marketing, monetary/benefit incentives, and effective recruiting enterprises. In times of peace, during periods of economic strength, or when militaries have poor relationships with their citizens, volunteer forces may have significant difficulties garnering quality recruits.

Contracted forces are another option but there are strong limitations to their use. While the term "mercenary" may apply, not all contracted forces are necessarily mercenaries.[11] Throughout history, contracted forces have been used to conduct some military activities. In the United States, contractor forces often perform support tasks like moving materiel or providing services but are not generally used as combat forces because engaging in direct action against an enemy is considered inherently governmental. However, depending on the contract

[11] The important distinction is that mercenaries are *personally* fighting for the desire of private gain. Although a firm providing a contracted force may be operating under a profit motive, they may not permit their members to profit directly from their participation in operations. This distinction is important as mercenaries are expressly forbidden under Article 47 of the 1977 Geneva Conventions, each nation establishes different rules regarding what constitutes allowable use of deadly force by contracted personnel against enemy armed forces. In the US, this is governed by DoD Instruction 3020.50, *Private Security Contractors Operating in Contingency Operations, Humanitarian or Peace Operations, or Other Military Operations or Exercises* (Washington, DC: Department of Defense, October 2022).

and operation, they may be authorized to carry weapons and they are always afforded the right to self-defense.[12]

Once people are brought into the military, they must be trained and developed. Militaries can do this centrally, sending all draftees or recruits through basic and advanced training, or locally, sending soldiers to the unit to be trained. The first tends to result in greater standardization of training but does incur overhead to run training units. The latter option, training soldiers once they arrive at their unit, requires each unit to build a training plan and can result in units' members lacking basic skills.

Allocation of people is about assigning faces to fit specific force requirements. The services must match an individual's skill and ability to units that need that capability. Mismatches between spaces and faces have a real impact on unit readiness. Shortfalls in either the number or skills of people assigned to a unit directly impact that unit's ability to effectively accomplish its mission. Some reasons for these mismatches include the lag between identifying the need and finding someone to fill it, imperfect requirements forecasting, shortfalls in recruiting, and poorly designing the force by either building a force with more spaces than end strength can fill, by designing an unsustainable grade plate (imbalance or junior-senior personnel), or by frequently changing requirements by modifying the force design faster than the service can acquire and develop people with the right skills.

When spaces and faces are not matched, enterprise leaders must set priorities to fill units appropriately. Services can issue manning guidance that says which parts of the force have priority for personnel fill. This allows the enterprise to allocate people and manage shortfalls to minimize their operational impact. High-priority units may have all their spaces filled, while lower-priority units will be manned at lower levels or may have more mismatches in grade.

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[12] The meaning of self-defense and specific authorities related to the carrying of weapons by contractors is governed by DoDI 3020.50 and DoDI 3020.41, *Operational Contract Support (OCS)* with Change 2 (Washington, DC: Department of Defense, August 2018).

Talent management

While manpower management is about determining force requirements and spaces, and personnel management is about acquiring, developing, and allocating people (i.e., "faces"), talent management is about improving both of these processes. By better understanding the knowledge skills and behaviors (KSBs) required for each position, improving the assessment and development of KSBs in the force, and better matching the right people to the jobs they are best suited for, the services can maximize the talents available to them and improve performance across the force.

Most legacy personnel management systems were designed for the industrial age- military organizations that were much larger and less complex than contemporary militaries. The focus was on acquiring and developing large numbers of personnel quickly and managing them according to rank and specialty. These systems operated under the assumption that people of the same rank and specialty would have had approximately the same experiences and therefore were interchangeable. An effective talent management system assumes that with more information about an individual's KSBs, better decisions can be made regarding matching personnel with their gaining unit's requirements. In the US, talent management efforts within the services are in various stages of implementation with inconsistent results. The DoD and the military services are dedicated to improving these systems to improve overall unit performance. These efforts are also expected to improve recruiting, retention, and development programs.

Conclusion

People constitute the greatest competitive advantage of any effective military. Hence, many militaries expend considerable resources assessing and recruiting quality people, developing their knowledge, skills, and behaviors, training and employing them effectively to accomplish their missions, and providing incentives to retain needed talent. This talent includes uniformed military in all three components (active, guard, and reserve), DoD and service civilians, and contractors. The complex personnel system needed to succeed in this environment includes the

determination of requirements, programming, and budgeting for these requirements, acquisition of an appropriate workforce (numbers and mix), sufficient compensation/benefits to incentivize retention of talent, and the vagaries of economic cycles that influence recruiting and retaining people.

An important implication of this chapter is that defense enterprise leaders have to work hard to stay ahead of potential manning problems. There will always be persistent tensions between what militaries need and what service members and potential recruits need. The dynamics in the social, political, and economic environments mean that there is no stable, permanent solution. What is affordable today may not be tomorrow. Last year's recruiting surplus may be followed by a long recruiting crisis. The next Pearl Harbor or 9-11 may bring large numbers looking to do their part, but the end of operations may see too many of them rushing to return to civilian life. Leaders should learn to anticipate such shocks to the system along with ordinary trends about the people's propensity to serve and other factors to confront the possibility of not having enough of the right people manning the formations trained and ready when the nation needs them.

9. Efficiency & Measures of Performance

Tom Galvin

Efficiency is something readily understood to be a good thing. It is easy to recall the days of World War II and the Arsenal of Democracy where industries across the country manufactured military hardware and supplies at incredible speed, how fleets of US ships steamed across the Atlantic or Pacific to deliver them to the theater, and how the Red Ball Express trucked it across France and eventually into Germany. While the reality may not have been so perfect, there is little question that this ultimately delivered efficient sustainment to the advancing force and made victory ultimately possible.

So efficiency is good, but what does it mean? For many, faster, better, and cheaper are the understood measures. But then there is the caveat that one can supposedly only maximize two at the expense of the third. If one wants something of higher quality, one might sacrifice speed and cost. When one gets a burger in a fast-food joint one night and then decides to go to a higher-end sit-down restaurant at another, one expects to pay more and wait longer but the burger will (or at least should) be a lot better. If one is satisfied at both eateries, then each is acting efficiently, at least from the customer's perspective.

But are faster, better, and cheaper the only measures? Consider being in a big city and being reliant on the subway to get around. Being faster is not necessarily preferable – the trains need to run on time. Predictable and reliable are more useful measures of performance in such a case, and if the train schedule can be relied on that allows the customer to plan other activities with less worry.

This shows that efficiency means lots of different things depending on the context. However, in general, it represents the sense of satisfaction in the minds of the customer or client that expectations are met. From a management perspective, *efficiency* is a state or condition whereby there is no preferred alternative to

what is available or in use.[1] So efficiency is more of a comparative measure. Something is provided as efficiently as possible until someone else figures out a more efficient way to do it – such as making the good or providing the service faster, better, or cheaper than the competition.

Military operations are examples of activities where the meanings of efficiency change. In peacetime, money is constrained and the emphasis is on assuring needed readiness at the least cost. Nations at peace do not want unnecessarily large forces, so they keep those forces small. Training ammunition and other supplies are constrained to reduce waste. But when the balloon goes up and the nation commits to war, things change. Resources are less constrained because the threat is existential. Battlefield losses must be replaced reliably. In short, the organization's measures of performance are reoriented from expectations of deterring war to expectations of winning it. What is efficient in one context may not be so efficient in the other.

The above only scratches the surface regarding the many ways that an organization's performance can be measured. In economics, in fact, there are at least five different modes of efficiency relevant to defense leaders from economics, although only one or two typically dominate and drive defense enterprise decisions. This first section presents those five different modes of efficiency. This will be followed by a discussion about the development and use of measures of performance intended to assess an enterprise's efficiency.

A *type of efficiency* is a set of measures that are commonly associated with each other and collectively represent a perspective about what constitutes improved performance. Thus, a leader whose experience, expertise, or personal preferences follow a particular mode, that is going to dominate the way the leader assesses the performance of the organization and other perspectives will be marginalized or disregarded. Below are five common types of efficiency followed by overall implications.

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[1] Paul Milgrom and John Roberts, *Economics, Organization, and Management* (Upper Saddle River, NJ: Prentice-Hall, 1992).

Technical efficiency – faster, better, cheaper

This is what one typically thinks of as efficiency in a transactional sense, such as from the consumer's perspective. The essential question is this -- *how many outputs can be generated from the inputs*?[2] The organization's performance is viewed like an assembly line. Getting products off of the assembly line faster or using fewer resources while enhancing or not sacrificing quality is the aim. This also applies to services, such as seeing patients in a primary care clinic. Does each patient receive care as quickly and as effectively as possible? Can the care be provided in less time, to serve more patients?

However as described above, technical efficiency cannot necessarily be maximized. Faster, better, and cheaper often conflict with each other. One may be able to improve two out of the three, but the third may be sacrificed.[3]

Moreover, every individual transaction counts and bad transactions tend to carry outsized meaning. So if one goes to a primary care clinic for the first time and has an extremely bad experience, then that means that the clinic's technical efficiency from the client's perspective is zero and the patient is never going to go back to that clinic again.

Productive efficiency – predictable, reliable, stable

Productive efficiency is similar to technical efficiency but taken at a more collective or systemic level. The essential question is more like this: *What is the average total cost of generating the full set of collected outputs from all the collected inputs?*[4]

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[2] Steven Aldridge, Angus Hawkins, and Cody Xuereb, "Improving Public Sector Efficiency to Deliver a Smarter State," Civil Service Quarterly @GOV.UK, January 25, 2016, https://quarterly.blog.gov.uk/2016/01/25/improving-public-sector-efficiency-to-deliver-a-smarter-state/.

[3] Robert Swisher, "Fast, Good, or Cheap. Pick Three?" *Business.com*, February 22, 2017, https://www.business.com/articles/fast-good-cheap-pick-three/

[4] Economics Online, s.v. "Efficiency," January 17, 2020, https://www.economicsonline.co.uk/business_economics/efficiency.html.

This was initially presented above from a managerial perspective regarding the totality of customers or clients. A restaurant may measure this in terms of the average experience of the customers against the average cost of operations. Consider a food company that produces packaged food items for combat rations – they might have a meat product line, a bakery line for crackers and other baked goods, and a produce line for processing fruits and vegetables. One can think of productive efficiency as measuring the total efficiency of the different lines, but if the customer is another firm assembling the combat rations by bagging the food items with the plasticware, napkins, and sundries, efficiency is measured in getting the food items on time – not necessarily too early since that may incur storage costs.

In a similar way, consider family support services on an installation. Different families have different needs for services, and it may be challenging to forecast how many services are needed at a given time. Thus, a variety of services are made available on standby, just in case.

So the measures of productive efficiency are different. The firm is efficient for its predictability, reliability, and stability. *Predictability* means one can anticipate when and how the service will be available and provided. *Reliability* means that services are always provided when predicted and always at similar quality. *Stability* means that services do not change in nature, character, or quality. In other words, volatility is minimized.[5]

The complication is that sometimes higher productive efficiency goes against technical efficiency, even though both are measures of outputs produced from inputs. Returning to the subway system, the subway company tends to offer services during off hours, like being able to get people home late at night, even though the train is probably going to be less full at 11 p.m. than it will be during rush hour. But the ability to provide a predictable service is its own reward because then people are overall going to rely on the train system to get them home after

[5] Cf. Merriam-Webster Dictionary, s.v. "Predictability," "Reliability," and "Stability."

the occasional evening out, as opposed to being self-reliant and using automobiles, which in big cities is impractical.

But, if the subway company leadership is attuned more to technical efficiency vice productive efficiency, one may see the empty late-night trains and consider this wasteful. The decision may be to reduce some of the lesser-used lines or some of the less-used services. This in turn may make the subway less attractive to the consumer whose expectations are those of predictability and reliability.

"X" efficiency – savings through competition

The theory of *X efficiency* states that competition brings about its own efficiency. Firms operating in a competitive environment are more likely to control costs so they can maintain their advantage in the eyes of rational customers. The opposite, *X inefficiency*, is based on the lack of competition, under which conditions there are no downward pressures on firms to control costs and sustain quality.[6] The products become poorer and more expensive as there is no other choice for the consumer.

X efficiency is a systemic measure of options available. The ability for consumers to have a choice means that the competition among the firms should cause each to try to provide the most attractive product or service that they can. One brand may be cheaper, but the other brand may be higher quality.

The competition can be on multiple fronts as well. Consider how online food delivery services have changed the way that restaurants compete nowadays. Restaurants no longer rely solely on in-person dining experiences but also increasingly offer takeout and delivery options, often through a relationship with food delivery firms. The availability of such options provides additional choices for the consumer which may make the restaurant that much more attractive, and potentially cause weaker firms to withdraw from the market.

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[6] Kenton, Will, "X-Efficiency: Meaning and History in Economics," Investopedia, August 23, 2022, https://www.investopedia.com/terms/x/x-efficiency.asp.

The level of X efficiency depends upon the level and the strength of competition. As described before, the lack of competition is not economically sensible. But what if the competition is uneven or imperfect? This might occur when one firm has such a dominant position that no other alternative looks good, or the barriers to entry in the industry are extremely high and so one firm comes to dominate, leading to questions about the attractiveness of the primary choice available. Is it the best value for what the consumer wants?

X efficiency may thus conflict with technical efficiency because that best value is not just about the individual transaction, it's also about transactions over time. Assume that a consumer is picking a good that is highly perishable like some blood products. The firm not chosen may be unable to sell their inventory to anybody else and they end up eating a whole bunch of unusable inventory. The level of competition could erode over time, which then impacts the meaning of best value for future transactions.

This mode of efficiency is important for militaries because competition is not just important for reducing the costs of goods and services needed in war, it fosters the development of innovations and options needed for flexibility as the needs of war change. Reliance on a sole supplier of goods and services also produces conditions whereby the potential disruption of that supply through sabotage or other enemy action increases risk. Consequently, defense managers should include X efficiency measures when making decisions about the provision of goods and services to account for what continues to foster the desired level of competition to keep costs down while sustaining flexible options.

Social efficiency – Eliminating harm & waste

Eliminating waste is embedded in all the above forms of efficiency with respect to those activities associated with the production of the goods or services themselves. *Social efficiency* is concerned with the second- and third-order effects of that production felt outside the firm. *Social efficiency* answers the

essential question -- *Are all of the external costs accounted for in the production of additional outputs?*[7]

By external costs, there are three broad categories – harm, waste, and overhead. In terms of harm, consider pollution of the environment because of the manufacture of a good. Social efficiency would consider the cost of processing the waste or precluding it from contaminating other aspects of the environment. A firm that successfully processes waste and disposes of it sustainably increases social efficiency, but this may result in reduced productive efficiency due to the added processing costs.

However, not all harm is brought about directly by production. The potential for misuse of a good by the consumer is also socially inefficient. Consider medicine that was produced for one purpose, to cure a disease or condition, that if misused can become dangerously habit-forming. This might create artificial demand for the drug but may deny access to it by legitimate patients. The firm may be agnostic since this is a problem caused by consumers, but there may be negative impacts on the firm's reputation.

The second form of social inefficiency is waste. Consider a restaurant that generates considerable food waste because it only uses certain parts of ingredients and discards the rest. A technically efficient restaurant would not be so concerned about this as long as the meal is prepared and delivered to the customer's expectations. However, a socially efficient restaurant would consider how the discarded parts of the ingredients could be used in a different recipe and perhaps change the menu to accommodate more thorough use of the ingredients available. There are also concerns about waste related to quality control, such as food spoilage before its expected best-by date as the result of poor storage, contamination, or that the supply chain itself was of poor quality. Waste can also come about due to failing to meet a consumer's expectations. Whenever the wait staff makes a

[7] Pettinger, Teyvan, "Social Efficiency," *Economics.Help* (blog), September 17, 2019, https://www.economicshelp.org/blog/2393/economics/social-efficiency/.

mistake in an order and serves the wrong meal that the customer refuses, the meal is lost and must be discarded. It cannot be held onto and served to another customer.

Naturally, militaries in combat cannot afford waste. It is difficult enough to get food, water, ammo, fuel, etc. to the front lines as it is. Also, militaries cannot afford to waste resources by doing unnecessary maneuvers for the mission. If the shortest path to the objective cannot be pursued, the path taken should be the most optimal for the situation to minimize unnecessary fatigue, which is a measure of the social efficiency of an operation.

Administration and overhead costs can also be seen as socially inefficient. When it comes to decision-making, planning, and other work outside of the direct production of goods and services, those functions need to be limited to what is necessary to assure efficient production, scan the environment, and consider alternatives to more effectively meet the organization's purpose. The devolution of administration into a stagnant bureaucracy that serves its own aims rather than servicing the warfighting is inefficient because this creates costs that are somehow passed down to the warfighters – and those costs can include time wasted on unnecessary reporting, confusion over objectives and purposes, and harmful micromanagement.

So one way of understanding social efficiency is as a form of accountability, such as if a firm is accountable to society in addition to providing the good or service then the accountability helps to maintain social efficiency. Similarly, the operational force is accountable for completing the mission; the enterprise is accountable for resourcing and sustaining the mission; and the leadership is accountable for maintaining the force's professionalism and trust coming from the civilian leadership and society.

Allocative efficiency – proper budgetary planning

Now, some literature treats social efficiency and allocative efficiency as synonymous, but some literature treats them a little bit differently, in which social efficiency looks much more at social costs, whereas allocative efficiency looks more at equitable

distribution. However, it may be easier to understand allocative inefficiency and its effects. Are organizations exercising end-of-year spending sprees with their excess budgets? Does the system make it difficult to move money where needed because the money is of a different "color," meaning that it is a different part of the budget serving a completely different purpose which therefore requires higher approval than one might consider necessary?

Allocative efficiency is the matching of costs and benefits and that all those in society or the customer base receive those benefits.[8] A simple example is that of driver's licenses. The state establishes a licensing department to ensure all drivers are appropriately certified to drive. This involves licensing centers and services within the state to perform the function based on anticipated demand, as every year there are *x* thousand licenses issued. Under allocative efficiency, the number of centers and the availability of services match the potential number of licensees and each licensee has equitable access to the service – no one is denied access or opportunity as long as they have the paperwork right. Allocative inefficiency comes about in several ways – not enough or too many centers, demand goes up or down, access is not equitable (some people are too far away or there is corruption whereby certain individuals are prevented access for inappropriate reasons).

Compared to productive efficiency

An important difference between allocative and productive efficiency is that allocative efficiency leads to the coloring of money.[9] In effect, the organization predicts and plans its allocation of resources based on projected levels of effort and anticipated demand. Drivers' licensing thus occupies a line on the overall state budget which is not only designed to ensure the provision of services efficiently but also to minimize the risk of having to reallocate resources during the budgetary period. The desire to minimize that risk is because of the transaction costs

[8] Aldridge et al., "Improving Public Sector Efficiency."

[9] OER Services, "Macroeconomics: Reading – Productive Efficiency and Allocative Efficiency," LumenLearning.com, https://courses.lumenlearning.com/suny-macroeconomics/chapter/reading-productive-efficiency-and-allocative-efficiency/.

associated with reallocating resources. An unexpected surge in demand leads to needing more money for the licensing centers but that money must translate into overtime, hiring temporary help, expanding facility access, or other options for increasing capacity, all of which are neither easily nor quickly done.

What is also important is that a *drop* in demand also produces allocative inefficiency. There are too many resources for the purpose, in which case leaders may have to furlough or lay off workers rather than pay them for being idle.

Allocative efficiency represents something critically important for the warfighter. Just as getting supplies to the field is difficult, so too is the distribution of those supplies where and when needed. If shortages occur, what is the capability of redistributing those resources to ensure everyone gets their fair share? Redistributing is like moving money, there is a transaction cost of rerouting trucks or supply lines that may increase security risks for the lines of communication. Because aggregate demand normally exceeds supply, no unit commander engaged in operations will welcome any redistribution of assets out of their sector, either. The risk of getting the reallocation wrong could be significant.

There is an additional consideration which is where the source of many of the government's inefficient behaviors such as end-of-year spending sprees come from. It is when allocative efficiency is combined with laws, regulations, or norms that constrain spending such as the US's Anti-Deficiency Act (ADA) that prohibits the expenditure of government funds without explicit authorization and appropriation from Congress. Many nations have similar prohibitions or constraints. Under an ADA-like statute, the legislature tells the executive branch or agency how much money they get and what they are allowed to spend it on. This means that the budget must be very precise because agencies must know precisely what they plan to spend their allocation funds in advance.

In the US system, if the appropriation bill is not passed in a timely fashion, Congress may pass a temporary fix called a continuing resolution. But if they fail to do that, then it means that the government agencies would have to shut down per the ADA.

DoD would not be permitted to spend any money on anything without the passing of some sort of appropriation.

This sets up conditions by which not only is overspending a problem but also underspending. If an agency concludes the year under budget, then that surplus was money that probably could be spent on something else, and it needed to have been moved. Under allocative efficiency, underexpenditure means that the agency must need less money to provide the programmed goods or services and therefore their budget will be cut. This is a problem for many agencies that may be dealing with uncertainty or volatility in the cost of the services they provide. So allocative efficiency kind of drives a culture of "use it or lose it." Many people would think of that spending spree sort of mentality as being wasteful, but that is how the system is built, unfortunately.

With social efficiency – appropriateness, access, and experience

For government services, which include the military, there is an important way that social and allocative efficiencies combine in the following way: *What is an appropriate service for the government to provide?* Or, *what constitutes a public good?* In this sense, if the government provides a service that the people do not consider appropriate for the government to provide, then the government is acting inefficiently from the perspective of the people, even if the provision of that service is the most efficient possible. In terms of colors of money, people view the inclusion of the dedicated line item in the budget as wrong. In the case of a military enterprise, this is where efficiency becomes less a question of to what extent the fighting force is ready, but whether y% of the budget is too little or too much to spend on defense. The question of what y is becomes a political decision but with implications for what resources will be appropriated and allocated to the military.

In similar ways, access and experience become important measures that are analyzed differently for a public sector organization than a private firm. The allocation of resources must be sufficient to provide equitable access to all deserving and that all receiving services are treated equally. The example of automating drivers' licensing is an example, where access should theoretically be improved overall by automating but those who

are without means and cannot afford a computer, may be disadvantaged in getting their licenses done. As a public good, licensing would be considered an obligation of the government whereas commercial firms would more likely treat excluding some clients or differentiating treatment as a business decision.

In a military context, there are both intrinsic and extrinsic measures of access and experience, both oriented on integrating mission accomplishment with patriotism and esprit de corps. Accession criteria govern who is allowed to serve, and the efficiency of onboarding and providing quarters, training, subsistence, quality leadership, education and development, career progression, etc. should be comparable for all who serve. Extrinsically, the military's mission performance is assessed in the degree to which all citizens feel equally protected from foreign and domestic threats and that their interactions with the military are reassuring and build confidence and trust in their abilities to defend and secure the nation. It could become socially or allocatively inefficient for the military to be improperly selective about what it defends against if misaligned against what the nation views as its greatest threat.

Conclusion

As the examples above show, efficiency is a very complex concept that exposes some natural tensions arising from the desire to measure an organization's performance and recommend corrective actions as problems arise. The same phenomenon in the organization can be perceived as efficient by one party but inefficient by another. The US culture is probably most attuned to technical efficiency – better, faster, cheaper – but that may not be the best way to measure the military's activities to ready itself for combat. Of course, some of the above measures are easier to capture and explain than others. The question is to what extent could the improper use of such measures lead to bad decisions?

10. Decision Support Systems

Tom Galvin

Managing the defense enterprise requires senior defense managers to continuously make decisions regarding the allocation of present and future resources to provide combat-ready forces to combatant commanders. Making strategic decisions involves collecting and analyzing vast amounts of information, as well as collaborating with and building consensus among a wide range of internal and external stakeholders. Consequently, senior defense managers employ various means, both automated systems and human-borne processes, to aid in decision-making.

To foster consistency and efficiency in deriving decisions on complex matters, the Department of Defense, joint, and service communities have developed numerous *decision support* activities. These include *processes* that govern collaboration and consensus, along with *systems* that automate the collection and analysis of information. Decision support refers to tools that assist in the decision-making process. Although one would ordinarily desire a decision support process or system to be comprehensive, consistent, and efficient, they often are not. Most were designed to address a specific need at a particular time, and the need may have evolved since then. The defense enterprise hosts a large number of decision support activities, many of which were developed somewhat independently from one another and may overlap in function. Getting these activities to work together harmoniously is a challenge. So when an organization seeks to develop processes and systems to aid in the decision-making process, several questions come to mind.

What constitutes a "good" decision?

At the strategic level, where the results are uncertain, this is a difficult question to answer because the results do not always follow from the decisions. The 'goodness' of a decision is therefore speculative and subject to different views. Is the 'goodness' of a decision based on the outcomes of that decision? Or, is it based on satisfaction with the process of reaching that decision? Is it based

on the level of involvement, participation, and transparency of the process? Is it based on the timeliness of the decision such that the desired effects can be optimized? Are the resources or activities aligned such that the decision can be implemented? Does it provide short-term benefits at the long-term detriment of the organization? Does it avoid crossing legal, ethical, or moral 'red lines' that could derail the decision or undermine the credibility of the decision maker or the organization's reputation?

The answer is probably a mix of the above, as some of these questions can lead to contradictory approaches.[1] Yet, the way individuals reflect on each factor influences the type of decision support and information needed to make decisions. Peter Senge highlighted how the best ideas fail to be put into practice when they conflict with deeply held assumptions about how the world works.[2] Boundary-pushing entrepreneurs may judge the goodness of strategic decisions differently from career unit-level leaders. Consequently, one must consider the quantity and nature of the information along with the number and perspectives of the collaborators. Put simply, "*how* decisions are made matters."[3]

What constitutes a "key" decision?

Keen and Morton suggested that certain decisions are more important than others in setting conditions for effective organizational performance. They also suggested that certain types of decisions lend themselves better to the development of decision support activities than others – to them, the best were 'semi-structured' problems that benefitted from a combination of routinized information processing with the application of individual judgment.[4] Many important enterprise decisions are

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[1] Peter G. W. Keen and Michael S. Scott Morton, *Decision Support Systems: An Organizational Perspective* (Reading, MA: Addison-Wesley, 1978), 7. It includes a passage talking about the mutual exclusivity of effectiveness and efficiency.

[2] Peter M. Senge, *The Fifth Discipline: The Art & Practice of the Learning Organization* (New York: Doubleday, 1990), 174.

[3] Paul K. Davis, Jonathan Kulic, and Michael Egner, *Implications of Modern Decision Science for Military Decision-Support Systems* (Santa Monica, CA: RAND Corporation, 2005) 19.

[4] Keen and Morton, 93 and 147.

'semi-structured,'[5] such as budgeting decisions where alternatives can be developed and objectively compared; but the decisions themselves still require professional judgment.

Although the defense enterprise sets several mandates and deadlines that are not of the leaders' choosing, such as when reports, programs, and budgets are due to Congress, senior leaders do have some discretion in setting the environment of decision. Some questions to consider include: Which decisions must be made first? Which require the greatest amount of energy and thought, and which ones can be handled more readily based on one's experiences? Which decisions are low risk, and which are high risk? Which have short- and long-term consequences? Which decisions are low impact, affecting only one's own domain, versus those that affect the workings of the rest of the organization? This also gets to *what* has to be decided *when*. Decide now or can it wait? What is the point of no return or missed opportunity?

How to deal with ambiguity and uncertainty?

James March wrote that in the presence of ambiguity and uncertainty, such as found in the strategic environment, "decisions are seen as vehicles for constructing meaningful interpretations of fundamentally confusing worlds, not as outcomes produced by a comprehensible environment."[6] Senior leaders may endeavor to make decisions that creatively and imaginatively lead their organizations to help reconcile ambiguities and uncertainties toward a more defined future.[7] However, the "depth"[8] of uncertainty in matters of policy inherent in decisions facing senior military leaders makes this extremely difficult.

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[5] Keen and Morton, 93, contrast 'structured' problems (such as certain payroll actions) that could be fully routinized, automated, and handled without executive action, from the 'unstructured' (such as choosing a magazine cover) that require extensive personal judgment on the part of a decision-maker such that the expertise would be difficult to codify and generalize for others' use

[6] James G. March, *A Primer on Decision Making* (New York: Free Press, 1994), 179.

[7] Paul K. Davis, Jonathan Kulic, and Michael Egner, *Implications of Modern Decision Science for Military Decision-Support Systems* (Santa Monica, CA: RAND Corporation, 2005), 48.

[8] Davis, Kulic, and Egner, *Implications of Modern Decision Science*, 46.

With so many questions and challenges, senior military leaders rarely have the time to apply "rational, systematic, and reflective thought" necessary to face each decision they must make.[9] It is little wonder that senior military leaders have embraced the use of decision support activities to help them cope with their decision-laden environment … one in which the very lives of the organizational members depend.

Purposes of decision support systems

King and Star wrote that there were five areas where senior decision-makers could benefit from some form of decision support activity.[10] I will refer to these as *purposes* of decision support:

- *Recognition* of the need for a decision
- *Acquisition* of relevant information
- *Sorting* (or labeling) of information as "important" and "unimportant"
- Concluding *deliberation* over the degree of import of pertinent information
- Establishment or *ratification* of the "decision"; or the product of the process

These activities best facilitate 'semi-structured' decision-making environments. For example, if importance or unimportance could be reliably determined, a more automated decision support activity could be employed. Of course, qualitative assessments of information relevance are highly subjective, so an automated process may only offer a partial sorting – that certain information is probably important based on clear indicators that can be automated or readily agreed among stakeholders, but the decision maker can exercise judgment and override.

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[9] Hugh J. Watson, George Houdeshel, and Rex Kelly Rainer, Jr., *Building Executive Information Systems and other Decision Support Applications* (New York: Wiley, 1997), 52.

[10] John Leslie King and Susan Leigh Star, "Conceptual Foundations for the Development of Organizational Decision Support Systems, In *Proceedings of the Twenty-Third Annual Hawaii International Conference on System Sciences -- 1990*, vol. 3 (1990): 143-151, 144.

This leads to another important factor in decision support activity design – who is the decision maker? Many of the early decision support systems were designed around the *individual* as a decision maker (e.g., the CEO whose decision was singular and final).[11] However, groups – collectives of a limited number of individuals who are established formally and focused on a particular function or line of work[12] -- can also be decision-makers. In this context, a senior individual may still render the certified decision, but the authority to render comes at least in part from the group. The design of *group decision support activities* differs from *individualized decision support activities* in some key aspects:[13]

- Group decision support must encompass both the handling of information at the individual level and the sharing and communicating of that information across all members. Individual systems only focus on the former.
- Group decision support incorporates the rules or mechanisms by which disagreements among group members can be addressed (or at least surfaced). NATO's "silence protocol" is an example of a group decision support activity that governs the handling of disagreement.
- Group decision support leverages the cohesion, tacit knowledge, and the shared understanding of the group. This helps "avoid confusion based on misunderstood context or nomenclature, and expedite fruitful discussion."[14]

Types of decision support systems

In the 1980s, decision support scholar Wayne Zachary presented a taxonomy of six decision support activities that captured the functions they served. Naturally, a particular decision could be supported by several of these activities or a

[11] King and Star, "Conceptual Foundations," 144.
[12] King and Star, "Conceptual Foundations," 144.
[13] King and Star, "Conceptual Foundations," 144-145.
[14] King and Star, "Conceptual Foundations," 145.

particular activity (such as a senior leader conference or broad-based automated system) can combine the features.

Process models

Process models serve to regulate complex processes. Specifically, it regards decisions involving "an action or plan [of] a sequence of actions that will be executed within some larger ongoing process."[15] Zachary suggested that "tactical military decisions" fell in this category, which is easily demonstrated. Decisions using MDMP often involve commanders determining their best courses of action related to specific geographic or functional missions within the context of broader military operations. MDMP also propagates downward in the hierarchy, as subordinate commanders subsequently determine their best COAs for their geographic or functional responsibilities within the context of the larger unit COA. This support model works well in situations where the sum of subordinate missions (along with the necessary coordinating instructions) equals the unit mission.

An enterprise example is the Milestone decision in materiel development and acquisition.[16] Milestones A, B, and C decisions represent three stages in an overall process of determining readiness to proceed with the production of new capabilities. The decisions fall in sequence although there are rules governing when decision makers can omit Milestone A. The process model standardizes the information available to the decision-maker, and each Milestone requires different information. For example, Milestone B (a.k.a., "a decision to award the contract(s) for development") culminates a process involving a full validation of the capability requirement and subsequent decision to solicit industry for development. The intent is to ensure success by demonstrating that all the pieces are in place to ensure the maximum chance that development will succeed. The actual

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[15] Wayne Zachary, "A Cognitively-Based Functional Taxonomy of Decision Support Techniques," *Human-Computer Interaction* 2, no. 1 (1986), 31.

[16] Undersecretary of Defense for Acquisition, Technology, and Logistics, *Operation of the Defense Acquisition System*, Department of Defense Instruction 5000.02 (Washington, DC: U.S. Department of Defense, January 2015), 7.

Milestone decision amounts to leader satisfaction that the process has been followed.

Choice models

A choice model is "a formal procedure for selecting one from a (discrete) set or (continuous) description space of decision alternatives."[17] This differs from the process model whereby a procedure is followed to generate and evaluate the alternatives against a deterministic outcome, whereas choice modeling weighs alternatives on a value scale. An example is a consumer preference for new features of some product, where the decision surrounds which changes in design generate the most favorable response and therefore the greater likelihood of success in the marketplace.

In the defense enterprise, choice modeling characterizes a number of decisions regarding benefits and services provided to service members and their dependents. Using child development centers as an example, alternatives for satisfying military sponsor demand for childcare at existing costs is a challenge. Choice models could be used to weigh the costs and benefits of various options, such as (a) redistribution of resources, (b) expanding benefits or expanding expedited access to resources off-base, and (c) restructuring programs to allow more participants but with reduced services.[18] Information technology services also employ choice modeling for weighing alternatives for help support, software/applications, and other services against security considerations and emerging mission requirements.

Information control techniques

These support the storage, retrieval, and organization of data, information, and knowledge needed for a decision. The goal is to mitigate overload on the decision-maker.[19] Data is a specific instance of a value or measurement "used as a basis for reasoning,

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[17] Zachary, "Cognitively-Based Functional Taxonomy," 34.

[18] Gail L. Zellman, Susan M. Gates, Michelle Cho, and Rebecca Shaw, *Options for Improving the Military Child Care System* (Santa Monica, CA: RAND Corporation, 2008).

[19] Zachary, "Cognitively-Based Functional Taxonomy," 38.

discussion, or calculation,"[20] but is devoid of meaning. Data becomes information once "interpreted by the decision maker in the context of some knowledge about the decision situation."[21] *Data overload* is a condition when the decision maker cannot make a decision because of having too much information available.[22] Data overload is often associated at the individual level, such as inundation of e-mails, but is equally relevant at the defense enterprise level with the volumes of data potentially surrounding strategic decisions. Information control techniques filter or summarize the data, often automatically through information technologies, to a form suitable for the decision maker.

Zachary identified five different techniques depending on the kinds of decisions needed. First, *database management tools* allow for the insertion and retrieval of raw data and are a fundamental building block of any decision support system. Such tools do no interpretation themselves, instead humans or other decision support mechanisms interpret it. Users query the data using very simple search filters that are value-neutral. In other words, one can exercise straight mathematical or symbolic comparisons (e.g., equals, greater than, most and least).

Aggregation tools allow for summarizing, especially vertically as leaders look for patterns or other ways to reduce the massive amounts of available data to something useful for the decision. Again, the tool does not so much interpret the data as reduce it to a reportable form. Moreover, these tools are deterministic, with only one possible answer to how the data aggregates.

Many decision support systems are real-time, continuously collecting and storing data. Sometimes the data represents a situation or condition that demands the attention of the decision-maker. *Alerting tools* set triggers (e.g., conditions in the data) to

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[20] *Merriam-Webster*, On-Line ed., s.v. "data," http://www.merriam-webster.com/dictionary/data (accessed 31 March 2016).

[21] Zachary, "Cognitively-Based Functional Taxonomy," 37.

[22] Cheri *Speier, Joseph Valacich, and Iris Vessey, "The Influence of Task Interruption on Individual Decision Making: An Information Overload Perspective," Decision Sciences 30, no. 2 (Spring 1999): 337-360.*

send appropriate notifications. Again, there is no interpretation done, and the decision-maker may elect to take no action.

Knowledge and rule management tools perform an access function for knowledge, storing both interpretations of the data and the rules that produced the interpretation. Such tools often encode the rules such that any changes to them require decision-maker or subject matter expert intervention. As such, these tools are characteristic of expert systems, decision support tools that permit non-experts to interpret data as experts would.

Finally, *knowledge representation tools* are the highest order, whereby the tool develops rules as it is used. Early artificial intelligence research sought this as a computerized equivalent of human intelligence, the ability to expand knowledge akin to human learning. For example, if the medical decision support system produces an incorrect diagnosis, knowledge representation tools help the decision support system investigate the causes of the error and build alternative diagnoses. The tools develop new rules and integrate them into the knowledge base.

These tools are extremely difficult to develop and test, and most information technology systems do not employ them. Rather, their designers interpret any anomalies that arise and implement changes to the rules. However, decision support systems where an available expert is limited may require these more sophisticated tools to render useful decisions, such as in military applications where adaptation is critically important.[23]

Representational aids, analysis & reasoning aids, judgment techniques

These aids and techniques lie in the internal logic of automatic systems or are natural components of any human-made decision involving complex matters.

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[23] Ryszard Antkiewicz, et al., "Knowledge-Based Approach for Military Mission Planning and Simulation," in Carlos R. Gutierrez (ed.), *Advances in Knowledge Representation* (Rijeka, Croatia: InTech Europe, 2012), http://cdn.intechopen.com/pdfs/36664/InTech-Knowledge_based_approach_for_military_mission_planning_and_simulation.pdf.

Representational aids support the expression and manipulation of data and knowledge in a decision problem. In automated systems, it is how the data is encoded and stored, along with the attributes that constrain it (e.g., if numeric, its upper and lower bounds; if symbolic, the set of accepted values such as marital status = {single, married, divorced, …}). Decision support processes also have representational aids, such as standard formats or templates of key documents (e.g., the capabilities decision document in the Defense Acquisition System). Standardization is a representational aid that helps decision-makers make sense of unfamiliar materials.

Analysis and reasoning aids support the performance of problem-specific reasoning processes based on a certain representation of a decision problem. Examples include modeling and simulations geared toward testing policy initiatives or evaluating programming and budgeting options.[24]

Judgment refinement techniques help optimize or better communicate decisions based on heuristics or intuition. Many experts base their decisions on rules of thumb built from experience that are difficult to explain, let alone represent in a computer system or replicate in a human decision-making process. The decision support system or process takes the decision-maker's reaction to the problem and first guesses the solution, then interactively refines it until the decision-maker accepts the modified decision or dispenses with the first guess and tries again.[25]

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[24] Robert P. McGowan and Gary A. Lombardo, "Decision Support Systems in State Government: Promises and Pitfalls," *Public Information Review*, Vol. 46, Special Issue: Public Management Information Systems (November 1986): 579-583.

[25] Zachary, "Cognitively-Based Functional Taxonomy," 49-50.

11. Leading Change Using Programmatics

Tom Galvin

In several previous chapters, programs were presented as the primary means that public sector organizations get things done. Programs connect actions to resources and purposes, normally expressed as policies or strategies. The term program or *government program* is very broad, however, and the programs that each government agency implements differ greatly in terms of structures, approaches, resourcing, and measures of performance among other factors.

Moreover, initiating a program is the last step in the process of deciding how to translate policy into action. The Strategic Choices Framework shows that there are many possible approaches to adjusting the size, composition, and capabilities of a military force with the constraints of a budget. As subsequent chapters show, however, each node on the triangle—readiness, modernization, and force structure—comprises a complex set of internal decisions, each with its own tensions. To what extent should leaders resource joint over service training? Which types of new weapons systems should we invest in and which should we divest? How much should pay and benefits increase to retain quality talent, or are there functions that the enterprise could outsource?

This concluding chapter offers a way of thinking about the ways available to defense managers when considering options for developing programs to serve a policy need. These will be called *programmatic levers* (or *programmatics*). Developing a solution in the form of a government program often involves consideration of multiple levers, such as increasing or decreasing levels of activity or resources. I will derive a set of levers by first describing a set of elements of government programs in general, and then proposing that certain elements are more important than others in the defense context. The chapter concludes with a proposed set of programmatic levers that defense managers can consider using when considering a program to satisfy a policy.

Policy and Elements of Government Programs

In the field of public administration, *policy* is a statement of intended outcomes combined with how government agencies pursue those outcomes.[1] The creation of a policy presumes that there is a problem or dissatisfaction with the current situation. After all, if there is no problem, there is no need for policy.[2] Justifications for policy normally include the identification of "causal problems," contributing factors weighing on the situation that necessitates the policy. Therefore, *programs* are "the given solutions to each of the causal problems that explains a central problem in policy and which were deemed crucial by a strategy designed to surround, to face, and to overcome it."[3]

Structurally, programs come in many forms. A weapon systems acquisition program allows for the purchase or development of a capability. An operations and maintenance program provides resources for manning, training, equipping, and sustaining military forces. A research and development program provides resources and facilities for conducting basic and advanced research on military-relevant concerns. These three forms are very different in management processes and systems, program evaluation, and implementation. They may also vary based on government norms and legislative frameworks.

The development and implementation of programs involve numerous activities aimed at continuously aligning ends, ways, and means. Each type of activity constitutes a *lever*, a way of effecting change within the defense enterprise. For example, one way to change the direction of a program is to increase or reduce its funding. This has the impact of showing new levels of

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[1] James C. McDavid, Irene Huse, and Laura RL Hawthorn, *Program Evaluation and Performance Measurement: An Introduction to Practice* (Thousand Oaks, CA: Sage Publications, 2018), 3, https://www.google.com/books/edition/Program_Evaluation_and_Performance_Measu/ehVoDwAAQBAJ. In the defense enterprise, the terms *policy letter* or *policy memorandum* may be used to describe a procedural requirement that necessitates compliance. For present purposes, these types of "policies" are better described as regulations, which are coercive.

[2] Antonio Lassance, "What is a Policy and What is a Government Program? A Simple Question with no Clear Answer, Until Now," *SSRN*, November 10, 2020, https://dx.doi.org/10.2139/ssrn.3727996.

[3] Lassance, "What is a Policy?" 10.

commitment or priority to the program and altering the amount of funding available for other programs. Creating new offices or headquarters is another level to drive change as it devotes personnel and potentially funding and facilities to a new function, again signaling higher levels of importance and priority. The following list is not exhaustive but describes a wide range of programmatic levers available to both civilian and military leaders:[4]

1. *Strategies, Policies, and Strategic Direction*. These define the purposes and desired outcomes of defense enterprise activity. It should align with an established policy and outline what the program aims to achieve and why it is necessary. However, "strategy" at the defense enterprise level is different from strategies in the military. Instead, they describe ends and provide overarching ways but rarely delve into specific requirements.

2. *Legislation, Rules, and Regulations.* Many government programs are established and changed through legislation or regulatory changes. These are coercive in nature and mandate compliance. In addition to establishing or removing a good or service, regulatory changes can also dictate eligibility criteria, application processes, and other operational details that influence who, how, and when agencies can gain or sustain benefits.

3. *Budget and Funding*. Government programs require funding to operate. The budget outlines the financial resources allocated for the program over time, including staffing, resources, and any associated costs. Reallocating funds can be an effective way to establish or disestablish a program or change its priority.

4. *Organizational Structures and Associated Real Property, Facilities, and Infrastructure*. Tangible assets such as organized units or designated positions and the facilities

[4] Based on OpenAI, August 16, 2013, from the prompt "What are the components of a government program?"

and infrastructures that house them symbolize a program's sense of permanence or durability. The connection with #3 is obvious because such tangible assets can represent a sunk cost that potentially complicates terminating the program and divesting its assets

5. *Implementation Plans and Associated Coordinating and Monitoring Mechanisms*. These operationalize the program and assign timelines and responsibilities for implementing a program. The plans will clarify the ways and means available and prescribe coordinating and collaborating mechanisms designed to sustain the organization's level of energy toward the program.
6. *Monitoring and Evaluation Mechanisms*. Programs need mechanisms to track their progress and effectiveness. Monitoring involves regularly collecting data on key metrics, while evaluation assesses the program's impact against its objectives. Program evaluation involves reconciling the intended outcomes with the actual.[5]
7. *Communication Campaigns, Stakeholder Engagement, and other Outreach*. Successful programs require effective communication strategies to inform the public, stakeholders, and potential beneficiaries about the program's purpose, benefits, and progress. Stakeholders tend to be numerous: government agencies, non-governmental organizations, communities, and the public. Engaging these stakeholders helps ensure collaboration, feedback, and support.
8. *Training and Capacity Building*. Programs requiring specialized knowledge or skills among members of the community or organization will often benefit from including training or educational activities. These can help to ensure effective and lasting implementation.

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[5] McDavid, *Program Evaluation*, 12.

9. *Reporting Requirements and Other Accountability Mechanisms*. Leaders and stakeholders can request or demand reports, inspections, or audits as ways of fact-finding on ignored or underserved topics or to renew energy toward underperforming programs among other purposes. These are typically in addition to any reporting requirements inherent to the program's implementation plans.

Defense managers can use some of these levers outside established programs to pilot ideas, experiment, innovate, or draw attention to areas where policies are insufficient, absent, or fallen out of alignment with present needs. In such cases, the actions are normally small in scale or localized so as to prevent conflict with existing programs. Several of these components also represent actions that can take place provisionally in advance of disseminating a formal policy. For example, operations and maintenance programs often include provisions to allow local commanders to shift funding allocations toward priority or emergency needs. Such funding reallocations could kickstart an initiative (e.g., new training requirement, new or urgently needed family support activity) that will be implemented more formally in a subsequent year's budget.

Some levers have more visible effects than others. One that probably springs to mind is budget and funding, not the least of which is because the relative amount of funds allocated to a program sends many signals to the organization. A program's budget signals its importance, as does whether the budget grows or is reduced. Others are accountability, monitoring, and evaluation mechanisms. The establishment of a reporting requirement, for example, means that the defense enterprise must allocate resources for the planning, data collection and analysis, and publication of reports which, due to being a public sector organization, the enterprise must make transparent and available, within the constraints of national security classification systems or other lawful restrictions.

Below is an elaboration of some of these levers that align with Behfar & Watson's (2019) *levers of control* that strategic leaders

ordinarily employ by their positional power and authorities.[6] While programs will naturally employ some combination of the below levers, one lever may provide the primary way to achieve the policy objective while the others are subordinate. Examples are given for each lever along with potential pitfalls of their use – none of these constitute a panacea for any enterprise problem!

Policy Changes and Strategic Direction

An obvious approach is to introduce a new policy objective or change the existing one, theoretically leading to changes in the attendant programs. This can be a stark move as it may disrupt the organization and expose programs to possible cuts if they fall out of alignment with the new objective. On the other hand, the new objectives might have little impact. For example, program managers may reframe their existing programs to comport with the new objectives without making many changes. It is also possible that policymakers intentionally choose objectives that foster such reframing so to minimize disruption while signaling more transformational levels of change to stakeholders. This lever is realistically only available to the most senior leaders in the enterprise as the scope of such policies is commensurate with the authorities vested in the leader issuing the policy.[7]

Let's take the example of former Chief of Staff of the U.S. Army (CSA) General Gordon Sullivan's "No More Task Force Smiths."[8] Task Force Smith was the initial force deployed to Korea from Japan to blunt the North Korean invasion in 1950 but was ill-equipped and ill-prepared for the mission.[9] Sullivan's direction was that U.S. Army units would never again be employed without being suitably prepared and equipped. This would translate to several programs that modernized the U.S. Army

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[6] Kristin Behfar and Dale Watson, "Leading Large Bureaucratic Organizations: The Internal Environment," in Thomas P. Galvin and Dale Watson (eds.), *Strategic Leadership: Primer for Senior Leaders*, 4th ed. (Carlisle, PA: Department of Command, Leadership, and Management, 2019), 31-33.

[7] Richard M. Meinhart, *Strategic Planning by the Chairmen, Joint Chiefs of Staff: 1990 To 2005* (Carlisle, PA: U.S. Army War College Press, 2006).

[8] Gordon Sullivan, "No More Task Force Smiths," *ARMY Magazine* (January 1992): 18.

[9] Conrad C. Crane et al., *'Come As You Are' War: U.S. Readiness for the Korean Conflict* (Carlisle, PA: U.S. Army War College, 2019).

following the end of the Cold War despite significant downsizing of the force.[10] He instituted the Army's Force XXI concept and the Louisiana Maneuvers, along with programs to enhance soldier capabilities such as leveraging emerging technologies and enhancing noncommissioned officer professional development.[11]

A more recent example of pulling the policy lever is the 2015 pronouncement by former CSA Mark Milley that readiness was the new number one priority for the Army.[12] This meant that the top concern for Army leaders, priorities for budgets and funding, and key focus for all Army activities was on training, manning, equipping, and sustaining the current force to be prepared for a near-term potential conflict.[13] It also meant that Army activities, including programming and budgeting, would be viewed through the lens of maintaining readiness. For example, when faced with potential cuts to family services, Milley blocked the cuts and justified the move as being unacceptably harmful to individual soldier readiness.[14]

Policies and strategic direction are useful communication tools to spur motion across the enterprise, but they do not guarantee results on their own. One risk is that commands and units will reorient their existing activities to show compliance with the new policy when it does not.[15] Another risk is infeasibility, such as when implementing the policy requires resources or relief from unneeded activities, neither of which

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[10] Rick Maze, "Sullivan Farewell: Army has Changed, Not for the Better," Association of the United States Army, May 20, 2016, https://ausa.org/articles/Sullivan-farewell-army-has-changed-not-better.

[11] National Center for Simulation, "Gordon R. Sullivan USA (Ret.)," July 2016, Simulationinformation.com/hall-of-fame/members/Gordon-r-sullivan/.

[12] Timothy Hale, "CSA Milley: 'Readiness is my No. 1 priority," Army.mil, May 18, 2016 https://army.mil/article/166838/csa_milley_readiness_is_my_no_1_priority.

[13] "Army Chief: Future War is 'Almost Guaranteed'," Association of the United States Army, October 4, 2016, https://www.ausa.org/news/army-chief-future-war-almost-guaranteed.

[14] Drew Brooks, "Army halts cuts to family programs," Fayetteville Observer, October 5, 2016, https://www.vvdailypress.com/story/news/military/2016/10/06/army-halts-cuts-to-family/25256573007/.

[15] Steven Kerr, "On the Folly of Rewarding A While Hoping for B," *The Academy of Management Journal* 18, no. 4 (December 1975): 769-783.

occurs.[16] A final risk can be frustrating for the policy's supporters – nothing happens. Even when resources are provided, the impacts of enterprise activities appear to have little to no effect on achieving the policy aim. For the proponent, the challenge is to determine if the policy is indeed unsuccessful or if the effects have yet to materialize. Impatience can lead to counterproductive actions that negate the policy's emergent benefits while sustaining a failed policy can result in waste. There is no simple answer as each policy will bring about its own problematic situation which must be properly assessed.[17]

Laws, regulations, directives, and related actions

I will use the term *regulations* to encompass all these documents and communications meant to be formally adopted by the organization and coercive to its members who must comply or risk being sanctioned. These levers are more direct and prescriptive in comparison to statements of policy. It is the extent to which compliance is required and enforced that defines the action more than the title assigned to the document. For example, a commander's "policy letter" could be fully binding to all members while a department's "directive" may be more lenient in implementation. However, it is the issuing authority that determines the level of enforcement. Any leniency or exceptions that members might seek would have to be negotiated.

Changes of this sort rarely occur in a vacuum. Generally, they come about through the identification of a problem that existing regulations do not address. Independent reviews, focus groups, and expert analysis help leaders shape the new regulation and avoid unintended consequences. One example is the 2021 decision to remove the unit commander from prosecution of

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[16] This is inspired by the problem of the *unfunded mandate*, often used when a law or policy from the federal level is imposed upon the states or when any higher authority imposes itself on lower levels without providing the requisite means. Congressional Budget Office, "CBO's Activities Under the Unfunded Mandates Reform Act," https://www.cbo.gov/publication/51335.

[17] Patricia M. Shields, "Rediscovering the taproot: Is classical pragmatism the route to renew public administration?" *Public Administration Review* 68, no. 2 (2008): 205-221.

sexual assaults. This followed the recommendations of an independent review commission that explored to what extent commanders were equipped to perform such prosecutions, with the answer being very low. In addition to internal DoD regulations being changed, the Secretary of Defense also pledged to work with Congress to change the Uniform Code of Military Justice.[18]

Unfortunately, such formal mechanisms are no better than policies at guaranteeing action or success. Lauren Edelman, a scholar of law and organizations, pointed out that laws tend to be defective due to the compromises needed for passage and the same applies to regulations and directives. The three common problems she highlighted are: (1) ambiguity of terms, (2) overly prescriptive procedures with limited flexibility, and (3) weak enforcement mechanisms. Because of these problems, units and staff may face uncertainty about how to comply and may pursue mitigating strategies to avoid assuming unacceptable risk while waiting for amplifying guidance or until others have uncovered acceptable interpretations of the law.[19]

Resources and authorities to spend them

Unquestionably, budgetary changes are rapid ways of drawing attention to something. The "zeroing out" of a program—meaning the permanent cessation of all resources previously allocated—sends a signal that a program is no longer needed or desired. The result is that the program is *canceled,* and any activity related to that program ceases immediately. Relative changes in resources granted can similarly reflect changes in priorities or signal confidence (or lack thereof) in the leaders charged with stewarding and managing the program.

An example of such a lever being used is the so-called *night court* process that the U.S. Army initiated in the 2010s to conduct

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[18] C. Todd Lopez, "Sexual Assaults Will No Longer Be Prosecuted by Commanders," Defense.gov, July 2, 2021, https://www.defense.gov/News/News-Stories/Article/Article/2681848/sexual-assaults-will-no-longer-be-prosecuted-by-commanders/.

[19] Lauren B. Edelman, "Legal ambiguity and symbolic structures: organizational mediation of civil rights law," *American Journal of Sociology* 97, no. 6 (1992): 1531-1576.

detailed top-down reviews of modernization programs to ensure alignment with established priorities and examine cost controls. The process was coercive—every modernization program was subject to review, and failing that review resulted in cancellation. Approximately $25B was reprogrammed in its first iteration.[20] Its success led to the adoption of the process across the Department of Defense.[21]

Reallocations are not without risk. First, moving resources generally carries a transaction cost that is not necessarily monetary but political. The losing account loses status or prestige and becomes vulnerable to further loss of resources. Across the defense enterprise, nearly every program is impactful for soldier readiness – whether new weapons systems or gear, professional education, training, facilities and infrastructure, substance abuse prevention, science and technology, childcare and spouse employment, and so on. Reallocating or reprioritizing hurts someone in the enterprise in some way and therefore the impacts must be carefully considered, communicated, and to the maximum extent mitigated.

Structures, posture, & real property

Developing or changing organizational structures is a common way to implement a defense policy. Doing so sends a strong signal that the policy objective is intended to be durable and persistent. Establishing an office, new command, or building, replacing, or upgrading facilities provides a visible sense of long-term commitment.

A great example is the creation of sexual harassment and assault prevention and response program (SAPR) offices in the 2010s in response to increased incidences of these crimes and the attention they garnered from the public. The services created

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[20] Jen Judson, "Army's 'Night Court' Finds $25 Billion to Reinvest in Modernization Priorities," *Defense News*, October 8, 2018, https://www.defensenews.com/digital-show-dailies/ausa/2018/10/08/armys-night-court-finds-25-billion-to-reinvest-in-modernization-priorities/.

[21] Mark T. Esper, *FY2021 Defense Wide Review: Report to Congress* (Washington, DC: Department of Defense, 2020), 2, https://media.defense.gov/2020/Feb/06/2002244621/-1/-1/1/FY-2021-DEFENSE-WIDE-REVIEW-FINAL.PDF.

centralized SAPR offices and established dedicated job positions for unit-level SAPR coordinators that were separated from equal-opportunity offices to avoid duplication or conflict.

It is also common to see new commands created to fulfill what is either a new requirement of an organization or reflects a rearrangement or reprioritization of existing ones. The US Africa Command, established in 2007, was created in response to a recognized need for dedicated attention to US military engagements in Africa. Before 2007, responsibility for security cooperation and military activities in Africa was divided among multiple regional commands but was no one's priority. The US Army Futures Command is another example whereby the US Army sought to "transform its modernization enterprise into a source of competitive advantage that U.S. adversaries cannot replicate."[22]

The inverse is also true; enterprise leaders may also eliminate structures, often to reduce redundancies in missions and purposes, reinvest the savings into other priorities, or simply respond to reduced budgets. The elimination of Joint Forces Command in 2010, the consolidation of service component commands by the Army and Marine Corps in the 2020s, and the various base realignment and closure initiatives are all examples of pulling the structural lever to improve the enterprise's distribution of resources.[23]

The risk of relying on new structures to drive institutional change is that they may outlive their usefulness. They can also be difficult to eliminate when the defense enterprise has become dependent on the functions performed and transferring those functions to another organization presents significant challenges. Stakeholders may not be willing to risk disruption to those

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[22] Neil Hollenbeck and Benjamin Jensen, "Why the Army Needs a Futures Command," *War on the Rocks,* December 6, 2017, https://warontherocks.com/2017/12/army-needs-futures-command/.

[23] Barack Obama, "Presidential Memorandum -- Disestablishment of United States Joint Forces Command," January 6, 2011; "US Army Europe, Africa now consolidated," U.S. Army Europe and Africa, November 23, 2020; Office of the Under Secretary of Defense for Acquisition & Sustainment Base Realignment and Closure (BRAC), Home page, https://www.acq.osd.mil/brac/.

functions. One can see this in cases where the DoD centralizes a function that the services should no longer perform, but the services still maintain a parallel structure due to an unwillingness or discomfort with giving up control.[24]

Reporting, information requests, and accountability

The fifth lever is indirect and subtle compared to the others but can have significant effects on defense programs. Stakeholder requests for formal reports or information about the efficacy of defense activities obligate enterprise members to devote energy to researching, analyzing, and reporting on a specified concern. The requests can vary in scope, number, and intrusiveness. At the lower end of the spectrum, the requests themselves may be little more than fact-finding, with the purpose being just to better understand the current state. More intrusive methods can be used to drive change by drawing disproportionate attention to an issue, continuous questioning of the organization's processes or culture surrounding it, or seeking to hold accountable those who are allowing the current state to persist.

Although members may find this approach disruptive and therefore respond defensively, pulling this lever vice issuing directives has advantages. It can uncover facts bearing on the problem that are otherwise hidden. It can encourage greater involvement of members of the organization in the decision-making process. Sometimes the approach can encourage members to initiate change themselves if there is an agreement that the current state can be improved.

An excellent, albeit controversial, example of the use of this level was former Secretary of Defense Donald Rumsfeld's "snowflakes," the suite of requests for information and directives issued by memo regularly to the staff (about 20-60 per day), especially after the terrorist attacks of 9/11. Their purposes were both fact-finding and driving change across the enterprise on a

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[24] *Defense Health Care: DOD Should Reevaluate Market Structure for Military Medical Treatment Facility Management*, Report #GAO-23-105441 (Washington, DC: Government Accountability Office, 2023), https://www.gao.gov/products/gao-23-105441.

wide range of topics, including concerns over the International Criminal Court and liability for war crimes, the modernization of the armed forces and transformation of the defense enterprise, the hunt for Osama bin Ladin, and the justification for the subsequent war in Iraq.[25]

Because this lever is less prescriptive than the others, it can create confusion in the organization rather than clarity. One legal scholar wrote that Rumsfeld intended for his memos to exercise Socratic dialogue and encourage alternate perspectives. However, military culture called for treating such correspondence as urgent matters, complicating the staff's abilities to coordinate and prioritize efforts. The number of snowflakes (totaling about 20,000 from across Rumsfeld's tenure) overwhelmed the joint staff's capacity to manage its responses.[26]

More generally, feedback and reporting mechanisms can impose increased administrative burdens and complexity, particularly if there is uncertainty over how the collected information will be used and when. "Dashboards" and like mechanisms intended to provide continuous at-a-glance reports for leaders can easily evolve into tools for excessive monitoring and control, especially if data collection cannot be reliably automated. Instituting such mechanisms should always begin and end with the unit's needs in mind.

Implications

There are two points about pulling these programmatic levers to effect change. One is the importance of alignment with established policy and at least implicit agreement by the policy's stakeholders. Taking actions that contradict or precede the associated policy decisions can be risky and potentially tie the hands of leaders who may be considering policy changes. Defense

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[25] "A Rare Look Behind the Scenes at Donald Rumsfeld's Pentagon," *ProQuest*, January 14, 2021, https://about.proquest.com/en/blog/2021/a-rare-look-behind-the-scenes-of-donald-rumsfelds-pentagon/.

[26] Patrick M. McGrath, "Rumsfeld's Rules," *The Army Lawyer,* no. 2 (February 2014): 29-33, https://heinonline.org/HOL/Page?collection=journals&handle=hein.journals/armylaw2014&id=86&men_tab=srchresults.

managers should ensure proper notification that such actions will be pursued to ensure they do not undermine other ongoing discussions.

The second is the importance of taking a systems approach. Pulling these levers to achieve short-term results could place longer-term goals in jeopardy and create confusion in the organization. As other chapters in this Primer show, the defense enterprise typically separates current operations from futures precisely to avoid unnecessary conflict between immediate needs and long-term investments. However, the tension between the now and the future is unavoidable. Pulling any lever incurs second- and third-order effects on other parts of the enterprise, and it may not always be possible to anticipate these effects.

Conclusion

The Primer presents the defense enterprise as it is designed and intended to function. It broke down four layers of the enterprise—national, defense, joint, and service—to show the different roles, missions, resources, and processes at each layer. It presented the laws, regulations, and doctrine that established these divisions of responsibilities and associated checks and balances. Of course, this is not necessarily how the enterprise always functions in practice. The wars in the 21st century changed the way the enterprise operates, creating new operational norms that may not suit future warfare. For example, the Joint Urgent Operational Needs process formed as the acquisition system became unresponsive to new requirements from the theater. The enterprise learned how to respond better, and those responses became institutionalized. But much of the old acquisition system remains unchanged despite calls for its transformation.

Such churn is ever-present. The enterprise is constantly changing in response to the dynamics of global and national environments. When new senior leaders take on assignments at the enterprise level, they may encounter such changes in the formative stages—looking like half-baked ideas or poorly-formed processes in conflict with how the organization is set up to do business. It may therefore be tempting to apply the brakes when in reality the better approach is to press the accelerator instead. Senior leaders should ask the hard questions about whether the phenomenon indicates problems with the process as designed, with differences in perspective between entities in the enterprise, or with changing or unmet needs of stakeholders.

Chapter 2 offered some of the competencies needed by senior leaders to serve as defense managers. They require strong strategic thinking skills, managing strategic problems, envisioning the future, understanding complexity, leading change, building consensus, negotiating, rendering best military advice, and performing effectively in joint, interagency, and

multinational environments.[1] However, performing the duties of a defense manager is difficult because of the pace, which some may find overwhelming. They must avoid devolving into high-ranking crank-turners of the machine. They instead should be its *engineers*, *architects*, or *artists*. As engineers, senior leaders should ensure alignment between the processes and systems and the purpose they serve. If something has changed, senior leaders must drive change. As architects, senior leaders must keep watch over the functioning of the enterprise as a whole. Process-by-process change allows for incremental adjustments, but sometimes the entire system must be transformed. And, there is an art to management, particularly: (a) over an all-volunteer organization that puts significant stock in the development and welfare of its people, and (b) over a military force with global responsibilities. The need to maintain qualitative and quantitative superiority over a wide range of conventional and unconventional adversaries requires both resources and creativity, not complacency.

The pressures on senior leaders to subsume themselves to the whims of the enterprise are, and will always be, great. Given the opportunity, the short-term demands of running the military will consume all available time. The challenge is to transcend the churn and fight to sustain the long-term big-picture view. *Is the enterprise doing everything in its power to ensure the provision of trained and ready forces now and in the future? If not, what is preventing the enterprise from doing so?* And then for the individual senior leader and the processes and systems they are responsible for, are they helping or hindering the enterprise's cause?

There is always room for improvement. The enterprise can always be more effective, efficient, ready to address unforeseen issues, and better tailored to the environment. Improving the enterprise takes players and not spectators.

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[1] For more detail, see Douglas E. Waters, "Senior Leader Competencies," in Tom Galvin and Dale Watson (eds.), *Strategic Leadership Primer*, 4th ed. (Carlisle, PA: U.S. Army War College Press, 2019).

About the Contributors

Tom Galvin

Dr. Tom Galvin is Assistant Professor of Leadership Studies at the U.S. Army War College. He holds a Doctor of Education degree in human and organizational learning from The George Washington University, and has research interests in leading and managing change, strategic communication, leader development, and building defense forces education. He retired as a colonel after twenty-nine years of active service in the U.S. Army, which included ten years in executive assistant positions among various service, joint, and combined commands.

Lou Yuengert

Professor Lou Yuengert is the Professor of Defense Leadership and Enterprise Management at the U.S. Army War College. He holds a Master of Science degree in Operations Research from The Georgia Institute of Technology, and through his experiences during two tours on the Army Staff has expertise in programming, budgeting, and acquisition management. Professor Yuengert is a retired U.S. Army colonel.

Bob Bradford

Professor Bob Bradford is the Associate Professor of Defense and Joint Processes and Henry Stimson Chair of Military Studies at the U.S. Army War College and is in his seventh year on the Carlisle faculty. He is the Director of the Enterprise Management Enrichment Specialization (EM), an enrichment specialization. Bob served 30 years as an officer in the U.S. Army, the last twenty as an operations research analyst supporting enterprise decisions.

Jeff Wilson

Jeff Wilson is the Professor of Force Management Studies in the Department of Command, Leadership and Management (DCLM) at the US Army War College. A retired Army Colonel, he has served as a logistician, acquisition professional, and faculty instructor for more than 40 years.

Doug Orsi

Professor Doug Orsi is Assistant Professor of DoD Systems at the U.S. Army War College. He holds a Master of Science degree in Education from Old Dominion University with research interests in the defense industrial base and mobilization. Professor Orsi has had assignments in requirements development and acquisition and is a retired U.S. Army colonel.

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