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## WHAT IS 'FORCE STRUCTURE'?

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*Force structure constitutes one 'point' of the defense resourcing triangle with modernization and readiness as the other two points. Whereas the latter two discuss decision outcomes that are intangible or uncertain, force structure decisions govern what the military physically has on hand – people, materiel, and infrastructure – and what the military could generate when needed. How much force structure does the military need to satisfy the requirements of its national strategy and the exigencies of current threats it faces (such as an enemy across the border)? How is that structure divided into services or components? How much must be 'active' or immediately employable vice in 'reserve' or mobilizable within designated time constraints? Where do these forces need to be stationed, and with what capabilities at hand (facilities, land, etc.) to train and ensure readiness?*

*This paper discusses some of the main constructs involved in such decisions – roles and missions; organizing the force and determining personnel and materiel requirements; and stationing & real property decisions, including construction, utilities, and sustainment. While the enterprise employs an array of disparate, even independent, processes and systems to deal with these, they all converge at service level to align what is a typically insufficient supply of force structure to meet the greater demands of national strategies.*

What does it mean to translate a national defense strategy into force structure? The Strategic Choices Model shows that the defense enterprise channels its resources into three buckets -- *modernization, readiness, and force structure*. Using Thucydides' accounts of the Peloponnesian War as an analogy, modernization regards the quality of equipment available to the force (e.g., swords, shields, pikes). Funding modernization involves research, development, production, and fielding of both better versions of said equipment or creation of new equipment (e.g., trebuchets). Readiness is about how sharp the swords and pikes are and how well soldiers are prepared to

use them. Funding readiness includes training and sustainment.

*Force structure* is concerned with how many personnel and equipment are needed. How many swords, shields, pikes, etc. must be in soldiers' hands or in the arsenals? Also, how many soldiers are needed? Of course, these cannot be asked absent a strategy that answers the questions of what missions these soldiers are expected to accomplish, plus where and when. Consider the challenges posed by threat-based vice capabilities-based strategies. If the strategy is threat-based, one may be able to calculate the force structure required more directly, but there may be unacceptable risk of the next war taking place in a different theater than anticipated, and

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the character of the war may be different. How well would a force built to fight in the plains in central Europe fare when the crisis actually arises in a coastal jungle region in Africa or among the volcanic island nations of Southeast Asia? Capabilities-based strategies may provide some flexibility to offset uncertainties about where the next fight would be, but the range of capabilities required may be too great and the force structure therefore unaffordable.

Questions like the following seem simple but the answers can be very complicated: *How many ships do you need? Planes? Tanks? Soldiers? If only it were such a straightforward math exercise – multiply the end strength and needed platforms by respective unit costs, instant budget! But service planners must dig deeper with more detailed questions. What kinds of ships, tanks, and so on, and how many of each do we really need? Where do we put them so they can accomplish the mission best? How much do we place on active duty, and how much can or should go to the reserve components? Or, what must we have on hand now versus what we could contract for when needed?*

The purpose of this paper is to present the constructs associated with these decisions within the context of *organizational design*, described as the establishment of formal and informal structures within an organization that optimize both mission accomplishment and well-being and commitment of its members.<sup>2</sup>

## ORGANIZATIONAL DESIGN IN THE MILITARY

*Force structure* determines the general answer to the question of “Who does What and When?”<sup>3</sup> For many public and private sector firms, this is a fairly straightforward question because demand for goods and services is often measurable and one can determine when it is good or necessary to open up a new government office or franchise in a location where unmet demand could be satisfied. Defense strategies are harder to translate into force structure because of the greater uncertainty surrounding what is needed to satisfy the strategy. Such strategies rarely define clearly the ‘who,’ ‘what,’ or ‘when’

in sufficient detail. War plans provide fidelity for a specific war scenario, but the services have to determine the proper aggregate force structure to satisfy these plans based on many factors, balancing suitability with affordability. One should also not forget that the enemy gets a vote!

The right force structure today may not be the right force structure next year as adversaries develop and modernize their capabilities. Inherent in force structure decisions is the need to account for changes in the competitive environment that may not trigger changes in overall strategies but are important for matching strategies with the right mix of capabilities.

This is not unique to the military. Some firms, like software development, do not have the same formulae that a restaurant chain may have. Software is famous for very small firms generating cutting-edge products faster than larger firms. Similarly, militaries face interesting questions about what *type* of force is best suited for a particular strategy – larger conventional forces or smaller special operations forces. When services lean one way over the other, it can have significant implications for end strength requirements, platforms, and all the supporting facilities required.

### Basic Questions

When one designs any organization, several questions should come to mind, such as: *What are the goals? What are the tasks that comprise the goals? Who needs to do them? Who must communicate with whom? What is the incentive structure to foster top performance?*<sup>4</sup>

This does not just apply to the creation of organizations but also their evolution and transformation. As the goals change, so too would the division of the work, the communication channels, and so on. When there are shortages of personnel and available outside talent for hire is insufficient, the organization must rearrange its structure to compensate or change its goals.

It would be too simplistic to think of organizational design in the military being

<sup>2</sup> Richard M. Burton, Børge Obel, & Dorthe Døjbak Håkonsson, *Organizational Design: A Step-by-Step Approach*, 4<sup>th</sup> ed. (Cambridge, UK: Cambridge University Press, 2020), 3.

<sup>3</sup> Burton, Obel, & Håkonsson, *Organizational Design*, 7.

<sup>4</sup> Burton, Obel, & Håkonsson, *Organizational Design*, 7.

mostly about how many battalions make up a brigade, what are the enablers that round out a brigade combat team, or which paradigm is better – brigade-centric or division-centric? Rather, organizational design efforts involve synthesizing a wide variety of resources – from personnel and equipment to facilities and infrastructure – that balances capabilities with affordability. The implication is that one assumes the force structure will always be insufficient to do everything called for in the strategy. Risk becomes a vital tool for deciding which forces must be on-hand at a higher state of readiness versus those that be generated when called upon.

As much as the U.S. military employs doctrinal concepts to standardize as much of the force as possible – such that all crews of carriers, planes, tanks, etc. are organized alike -- a large part of the defense enterprise is designed more on a contingent basis. In other words, force structures evolve over time. For example, the creation on a new capability such as a weapon system will not normally see dramatic changes to the internal make-up of a service at once. Rather, the service will develop a fielding schedule and deliberate plans to transform units to match the production of the new units with the training requirements of personnel and construction / renovation requirements of facilities. Crises, budgets, and other factors may impact such schedules.

For example, consider the Army's Big Five weapons systems developed in the late Cold War that played significant roles in the coalition winning the Persian Gulf War in 1991. While in retrospect, the Big Five had a tremendous cumulative effect on the U.S. Army's capabilities, their fielding and development occurred over significant timeframes and were not necessarily harmonious with each other. The lesson is that while military leaders seek transformational changes that deliver lethality and decisive effects on the enemy, the force structure at any given time is the cumulative effects on the conduct of dozens or hundreds of ongoing, unfinished change efforts. It is a messy business.

### *Major Constructs*

For present purposes, it is sufficient to present the major constructs of organizational design applied to military organizations. Each is devoted a brief section describing their roles in force structure decisions, some considerations and issues, and implications for the enterprise as whole. The paper will introduce only a few processes and systems employed in decision making processes but recognize that these evolve rapidly. The current edition of the U.S. Army War College's *How the Army Runs*<sup>5</sup> reference guide can provide greater detail into how the below are managed at service level.

- Roles and missions – This covers the divisions of responsibilities among defense agencies and the services. It includes strategic direction for the capabilities each suborganization is responsible for providing and how overlaps and underlaps are addressed.
- Manning the force – This addresses the 'spaces' for personnel in the force structure and their allocation across the services and agencies. Within each service, the manning function governs the skills, competencies, and attributes required.
- Organizing & equipping the force – These will be addressed together as equipping is normally seen as part of readiness and modernization. This addresses how a service or agency determines what organizations will satisfy the named requirements, and how many personnel and how much materiel those organizations should comprise. Also addressed is force mix – what will be performed by the military versus outsourced, and what must be in the active component versus reserve.
- Stationing the force – This addresses where forces are located and what

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<sup>5</sup> Louis G. Yuengert (ed.), *How the Army Runs 2019-2020: A Senior Leader Reference Handbook* (Carlisle, PA: U.S. Army War College, 2019).

training bases, mobilization, prepositioned stocks, etc. they require.

- Real Property - determining the buildings and other facilities required to support the organization's stationing - includes locations, proponencies, utilities, agreements, etc.

## ROLES & MISSIONS

The first principle of organizational design, and therefore of military force structure, is how to divide the labor. *Who will do what? Who will not do what? Who will share responsibilities for something?* There are several basic configurations that organizations use, and militaries often employ a hybrid. One configuration is *divisional* whereby elements are self-contained and perform (or at least control) all aspects of a mission.<sup>6</sup> In the United States, the geographic combatant commands are examples. Although internally structured differently according to the requirements of their assigned areas of responsibility, the broad missions of the commands are congruent with each other - plan and implement theater strategies, conduct military operations, establish partnership and military-to-military relationships, and respond to crises as part of overall U.S. government efforts.<sup>7</sup> Carrier battle groups in the Navy, wings in the Air Force, divisions and brigade combat teams in the Army also reflect divisional structures.

The military also employs *functional* configurations for elements assigned primary or full responsibilities for a particular function.<sup>8</sup> The service staffs, functional combatant commands, and defense agencies are largely organized this way. For signal, DoD has the Defense Information Systems Agency while the services have their own equivalent element centrally handling signal matters. The same is true for intelligence, logistics, transportation, contracting, and other functions.

These configurations are not necessarily incompatible - indeed, the U.S. military routinely employs matrix-style organizing to produce

trained and ready forces tailored for a specific mission. Divisional elements often provide the core of the structure, augmented by functional capabilities (in the U.S. military, these might be called "slices"). Matrixing also provides the basis for the command and control structures overseeing the operation, either as: (1) established headquarters structures augmented by individuals or teams with specific required expertise, or (2) a new *ad hoc* organization assembled through individual taskings.

However, despite the apparent simplicity in translating defense strategies into divisions of labor, the process is generally imperfect and responsibilities are rarely clear. Some functions are contested among one or more services, while others are claimed by no one and therefore become a gap. Resources constraints can further inhibit the overall DoD ability to operationalize the roles and missions assigned to its subordinate entities.

Thus, services and agencies may rely on some sort of organizing construct that governs how they respond to changes in national strategies or conflicts with other entities. DoD, for example, exercises an organizing construct around military domains, whereby its services exercise primacy over a single domain - the Army for landpower, the Navy for seapower, the Air Force for airpower, and so on. These allow the services to establish claims of jurisdiction over new missions oriented on those domains. But such claims can be contentious and subject to negotiation.

### *Clarity? Roles & Missions Reviews*

National security strategies generally express missions and requirements at a high, abstract level without obvious paths to delineation among the services. Moreover, each iteration of such strategies often changes the missions and their priorities (when prioritization is included).<sup>9</sup>

In U.S. Code Title 10 § 113, the Secretary of Defense is required in each U.S. National Defense Strategy (NDS) the roles and missions assigned to the armed forces and any roles and missions

<sup>6</sup> Burton, Obel, & Håkonsson, *Organizational Design*, 74.

<sup>7</sup> See U.S. Department of Defense, "Combatant Commands," <https://www.defense.gov/Our-Story/Combatant-Commands/>

<sup>8</sup> Burton, Obel, & Håkonsson, *Organizational Design*, 69.

<sup>9</sup> See Richard M. Meinhart, *Strategic Planning by the Chairmen, Joint Chiefs of Staff, 1990-2005* (Carlisle, PA: Strategic Studies Institute, 2006).

assumed by other U.S. government agencies.<sup>10</sup> This can be accomplished in various ways such as within the text of the NDS itself or through a separate roles and missions document such as the 2009 and 2012 Quadrennial Roles and Mission Reviews issued within a year from the NDS they supported.<sup>11</sup>

Regardless of how communicated, the content of such reviews can be contentious. After all, the domains of war – i.e., land, sea, air, cyber, space – are not necessarily discrete and independent. Consider the following classes of capabilities concerning which service should have primacy or the extent to which the military provides the capability versus dependence on defense or external government agencies: naval aviation, riverine operations, military intelligence, cyber, domestic security and disaster relief, partner security capacity building, counterdrug, and many others. Thus, divisions of roles and missions can be the subject of negotiations and agreements. A notable example is the so-called Key West Agreement of 1948 that established the primary and secondary (“collateral”) functions of the services following World War II and the establishment of the Air Force.<sup>12</sup>

How the Key West agreement divided responsibilities for aviation will be examined in the next subsection, but more generally these reviews and agreements have natural limitations. First, the time and structural constraints behind the development of the review can mean that there may be insufficient details to help with force planning.<sup>13</sup> Second, the output of the reviews can be influenced by politics that constrain the budget and tend to enforce a sense of equilibrium among the percentages of the budget appropriated to the services.<sup>14</sup> Finally, as the next two subsections describe, roles and

missions could overlap or underlap such that the resulting force structures are inefficient or inadequate to meet established or emergent needs.

### *Redundancy? The case of aviation*

A significant theme in roles and missions discussions is the identification and hopeful eradication of redundancy, described here as one or more disparate elements performing the same mission. Natural tensions exist on two fronts. First, there is the clear tension between centralization for efficiency and decentralization for effectiveness and context-sensitivity. Put another way, a mission may seem the same between two different services, but at an additional level of detail, the services’ execution of the missions are different enough to preclude establishing a central pool from both services to draw from. The other tension is between flexibility and control. One service that depends heavily on a particular capability may be uncomfortable with that capability belonging to another service as it makes routine collective training more difficult and introduces complexity in command and control or information flow during operations.

Consider aviation as an example and the outcomes of the Key West Agreement of 1948 that largely influence the division of airpower responsibilities today. The original agreement placed naval aviation under the Navy, close air support to the Army under the Air Force, and allowing the Army to sustain its own aviation for reconnaissance and medical evacuation.<sup>15</sup> Each service aviation corps has its own purpose and aircraft to support the core fighting missions of the service. For the Army, it is fire and maneuver for example; for the Navy, it is keeping sea lanes open and denying them to the enemy.<sup>16</sup>

<sup>10</sup> U.S. Code 10 (2020), § 113, para. (g)(1)(b)(iv).

<sup>11</sup> U.S. Department of Defense, *Quadrennial Roles and Missions Review Report* (Washington, DC: U.S. Department of Defense, 2009), [https://dod.defense.gov/Portals/1/features/defenseReviews/QDR/ORMFinalReport\\_v26Jan.pdf](https://dod.defense.gov/Portals/1/features/defenseReviews/QDR/ORMFinalReport_v26Jan.pdf); U.S. Department of Defense, *Quadrennial Roles and Missions Review* (Washington, DC: U.S. Department of Defense, 2012), [https://cmo.defense.gov/Portals/47/Documents/PDSD/2012\\_QRM.pdf](https://cmo.defense.gov/Portals/47/Documents/PDSD/2012_QRM.pdf)

<sup>12</sup> Kenneth W. Condit, *The Joint Chiefs of Staff and National Policy: Volume II, 1947-1949* (Washington, DC: Office of Joint History, 1996), 95-96; Richard P. Weinert, *A History of Army Aviation, 1950-1962* (Fort

Monroe, VA: U.S. Army Training and Doctrine Command, 1991), 9-10.

<sup>13</sup> U.S. Government Accountability Office, *DEFENSE MANAGEMENT: DoD Needs to Improve Future Assessments of Roles and Missions*, Report #GAO-14-668 (Washington, DC: U.S. Government Accountability Office, 2014), <https://www.gao.gov/assets/670/665192.pdf>

<sup>14</sup> Raphael S. Cohen, *The History and Politics of Defense Reviews* (Santa Monica, CA: RAND, 2018), [https://www.rand.org/content/dam/rand/pubs/research\\_reports/RR2200/RR2278/RAND\\_RR2278.pdf](https://www.rand.org/content/dam/rand/pubs/research_reports/RR2200/RR2278/RAND_RR2278.pdf)

<sup>15</sup> Condit, *The Joint Chiefs*; Weinert, *History of Army Aviation*.

<sup>16</sup> Condit, *The Joint Chiefs*.



However, because services share some platforms (albeit different models), allegedly bringing about increases in costs, differentiating roles and missions for aviation across the service is attractive and could contribute to cost savings. In a similar vein, as unmanned aerial vehicles rose to prominence in this century, questions have surfaced about which service should lead their development. Instead, different services have invested in efforts that appear redundant because the overall division of labor is unclear.<sup>17</sup>

### *Appropriateness? The case of security assistance*

Each service has a set of core missions that closely align with their identities, largely rooted in conventional military operations. Missions that compete with that identity, even if tacitly acknowledged as important, will tend to lose out in terms of dedicated force structure. This raises two questions regarding the appropriateness of the role or mission: (1) is *fill-in-the-blank* something the military should be doing? And (2) does *fill-in-the-blank* require dedicated assets for the purpose or could it be handled as a collateral mission for an existing structure?

An example is *security force assistance* (SFA), an effort to build the security capacity of a partner nation largely for the purposes of ensuring their self-sufficiency in providing for their own security. The Department of State has the primary role of developing partner nation institutions writ large and has programs for SFA, such as Foreign Military Financing to help partners acquire U.S. defense equipment and services and the International Military Education

and Training program allowing foreign servicemembers to receive professional military education in the U.S.<sup>18</sup> Thus, there are questions regarding whether the U.S. military should be involved in SFA at all.<sup>19</sup> However, the U.S. military had traditionally played a role, and it is recognized that SFA conducted by serving military members can be more effective than similar activities done by State contractors.<sup>20</sup> Still, military's conduct of SFA occurs under *chief of mission authority* – that is, subject to approval by the respective U.S. Ambassador.<sup>21</sup> Moreover, successful SFA depends on the partner nation government's capacity to maintain its own military, something that the Ambassador is best positioned to assess.<sup>22</sup>

If the military conducts SFA, the next question is what type of force could or should do it? SFA is often performed by combat forces, but these forces may generally lack the specific skills and knowledge required. Also, as a collateral mission, SFA may detract from the core readiness of such forces.<sup>23</sup> This leads to a question over establishing a separate force dedicated to SFA. In the late 2010s, the U.S. Army began implementing its plan to establish six security force assistance brigades (SFAB). The 1<sup>st</sup> SFAB activated in 2017 and deployed to Afghanistan soon afterward. As of this writing, all five active and one National Guard SFAB (roughly 800 soldiers apiece) have been established, which allowed elements of conventional combat units to return home to train for their traditional missions.<sup>24</sup>

<sup>17</sup> Walter Pincus, "Fine Print: A Game of Overlap," *Washington Post*, April 23, 2013, [https://www.washingtonpost.com/world/national-security/fine-print-a-game-of-overlap/2013/04/22/694991ec-a9d7-11e2-a8e2-5b98cb59187f\\_story.html?tid=a\\_inl\\_manual](https://www.washingtonpost.com/world/national-security/fine-print-a-game-of-overlap/2013/04/22/694991ec-a9d7-11e2-a8e2-5b98cb59187f_story.html?tid=a_inl_manual)

<sup>18</sup> For more, see U.S. Department of State, "Key Topics – Office of Security Assistance," accessed November 4, 2020, <https://www.state.gov/about-us-office-of-security-assistance/>

<sup>19</sup> For example, Michael J. Simmering, "The Limitations of Security Force Assistance and the Capabilities of the U.S. Army," *Small Wars Journal*, August 13, 2013, <https://smallwarsjournal.com/jrnl/art/the-limitations-of-security-force-assistance-and-the-capabilities-of-the-us-army>

<sup>20</sup> Meghann Myers, "Tough sell: Why aren't more soldiers rushing to join the Army's new adviser brigades?" *ArmyTimes*, June 25, 2018, <https://www.armytimes.com/news/your-army/2018/06/25/tough-sell-why-arent-soldiers-rushing-to-join-the-armys-new-adviser-brigades/>

<sup>21</sup> Matthew C. Weed & Nina M. Serafino, *U.S. Diplomatic Missions: Background and Issues on Chief of Mission (COM) Authority* (Washington, DC: Congressional Research Service, 2014), 8-10.

<sup>22</sup> Jahara Matisek and William Reno, "You Can't Build an Army in a State That Can't Sustain One: Explaining America's Problem With Security Force Assistance," *Modern War Institute at West Point* (blog), January 25, 2019, <https://mwi.usma.edu/Cant-Build-Army-State-Cant-Sustain-One-Explaining-Americas-Problem-Security-Force-Assistance/>; Jahara Matisek and William Reno, "Getting American Security Force Assistance Right: Political Context Matters," *Joint Force Quarterly*, no. 92 (Winter 2019): 65-73, [https://ndupress.ndu.edu/Media/News/News-Article-View/Article/1738248/getting-american-security-force-assistance-right-political-context-matters/fbclid/IwAR2vqs7zl0D2\\_c6jBpHCVqJO2ao6-U-YCFqAiy7WHalKfgdp0w4FR7UKGk/](https://ndupress.ndu.edu/Media/News/News-Article-View/Article/1738248/getting-american-security-force-assistance-right-political-context-matters/fbclid/IwAR2vqs7zl0D2_c6jBpHCVqJO2ao6-U-YCFqAiy7WHalKfgdp0w4FR7UKGk/)

<sup>23</sup> Edward P. Donnelly, Mike Redmond, and Bill Torrey, "The U.S. Army Approach to Security Force Assistance," *Military Review* (November-December 2010), 79-84, <https://apps.dtic.mil/dtic/tr/fulltext/u2/a536560.pdf>

<sup>24</sup> Alyssa Farah, "Statement on the Deployment of Army's 1st Security Force Assistance Brigade to Africa," *Defense.gov*, February 12, 2020, <https://www.defense.gov/Newsroom/Releases/Release/Article/20>

Such moves often generate controversy as dedicated force structures deny resources to other missions and can generate apparent redundancies. For example, how might the SFAB mission overlap with Army special forces?<sup>25</sup>

### *Other issues*

Naturally, with overlaps there can also be underlaps or gaps in which no service covers the mission adequately with their force structure (e.g., intratheater lift in the U.S.). There can also be difficulties in divesting capabilities that would foster reallocating the personnel and equipment to higher priority missions (e.g., Congressional retention of the A-10 despite efforts from the Air Force to cancel it). Centralization can cause missions to become wholly consolidated at the DoD level, within its agencies and field activities. Finally, there is the issue of *capacity* – how much of one capability is enough? Under constraints, it can be attractive to allocate only some resources for minimal levels of capacity in the hopes that when needed, the military can generate the additional capacity.

## MANNING THE FORCE

The manning function at the enterprise level is much more complex and long-term compared to personnel functions conducted at unit level. To illustrate, I will use one model that has been popular in the past several decades as a way of introducing the differences between strategic and unit levels.

### *Strategy alignment*

*Strategic human resource management* (SHRM) is a field of study exploring systematic approaches to connecting organizational strategies with its personnel activities.<sup>26</sup> Within the defense enterprise, these activities include how systems and processes for recruitment, selections and promotions, compensation and benefits, performance evaluations, assignment,

career management, and other align with the mission and purpose of the service or joint force as a whole. Therefore, in addition to the *vertical integration* of such activities with the overall enterprise strategy, SHRM emphasizes the need for *horizontal integration* such that the activities themselves are mutual supporting and complementary.<sup>27</sup>

Achieving both vertical and horizontal integration is challenging for any organization, but militaries present particularly difficult barriers. First, military organizations are heterogeneous in multiple ways. They include uniformed personnel, a civilian workforce, and contractors. The military personnel systems and civilian personnel systems are separate and distinct, such that military and civilian personnel are not interchangeable<sup>28</sup> and their respective systems are incompatible in some ways. A third option is to outsource, useful for certain skills and competencies that are difficult to build and maintain within the enterprise.

In the U.S., for example, military personnel rotate more routinely than civilians. This is because career management in the military emphasizes broadening of experiences while civilians are looked upon to provide deeper expertise and continuity. Meanwhile, technical skills ranging from aircraft maintenance to linguists may require outsourcing as the demand for such skills may fluctuate or it is not cost-effective to insource them. In general, planners should consider which is the best pool of personnel to develop, employ, and sustain the skills and knowledge necessary to exercise the strategy – military, civilian, or contract?

Componency is also a factor within the U.S. military force structure. The U.S. exercises separate human resource management subprocesses and subsystems across components, e.g., active Army, Army Reserve, and National Guard. Although some alignment

[82314/statement-on-the-deployment-of-armys-1st-security-force-assistance-brigade-to-a/](https://www.google.com/books/edition/_/zXG.IJ8BrMwC?hl=en&gbpv=1)

<sup>25</sup> Adam Brayne, "Forever Train and Advise, Part 1: Introducing the SFAB," *International Review* (blog), April 13, 2019, <https://international-review.org/forever-train-and-advise-part-1-introducing-the-sfab/>

<sup>26</sup> Michael Armstrong & Angela Baron, *Strategic HRM: The Key to Improved Business Performance* (Trowbridge, UK: Cromwell Press, 2002),

[https://www.google.com/books/edition/\\_/zXG.IJ8BrMwC?hl=en&gbpv=1](https://www.google.com/books/edition/_/zXG.IJ8BrMwC?hl=en&gbpv=1)

<sup>27</sup> Armstrong & Baron, *Strategic HRM*.

<sup>28</sup> Louis G. Yuengert (ed.), *How the Army Runs: A Senior Leader Reference Handbook 2017-2018* (Carlisle, PA: U.S. Army War College, 2019), 13-1 states that this is due to the separate legal and funding differences that establish separate pools of personnel. Hereafter HTAR.

exists, such as recruitment, there can also be challenges in equitable treatment due to the various statuses that reserve component personnel may exercise. Also, from an SHRM standpoint, strategic decisions such as whether the reserve component should act as an operational reserve or a strategic reserve has a tremendous impact on what constitutes the proper force structure. Other questions include: (a) what is the proper balance of skills and competencies required of National Guard members to serve both state and federal mission requirements? And (b), what are the impacts of strategic decisions about the reserve component on the members' civilian employers or their abilities to be self-employed?

Finally, the above decisions should never be considered final. Rather, they should be contingent on changes in the overall strategy, changes in the national workforce that impact the desired talent pools and competition for top talent, and changes in the security environment that may shift hiring and retention priorities in the near- or short-term.

### *Allocation of spaces*

Just as important as the alignment of the total force to the strategy is the division of skills and knowledge within the force. There is probably no finer example of this than the recent establishments of U.S. military organizations dedicated to the cyber (e.g., Cyber Command) and space domains (e.g., Space Force). The former was particularly interesting due to understandings that the pool of high-quality cyber talent does not necessarily share the same attributes (e.g., physical conditioning) as the archetypical soldier and therefore may not fit in well within the military context. This naturally generates a policy question on the proper balance between upholding existing standards or waiving them to allow the military to compete for such talent.

This may sound like a *talent management* issue, but there is an important difference. Talent management is the process and associated decision support tools that ensure optimal utilization of the organization's members, which also informs recruiting and retention strategies. The focus is on the "faces" of the organization,

meaning its actual and potential members. The cyber issue described above is more closely aligned with the allocation of "spaces"—determining the structure of the organization to which the faces will be recruited. Given that military organizations typically have top-line manpower levels that preclude natural growth, new requirements such as cyber commands, space forces, additional combat forces, etc. become embroiled in zero-sum game battles where leaders must find "billpayers"—other parts of the organization that must lose spaces to allow satisfaction of the new requirement.

The aforementioned division among militaries, civilians, contractors, components, etc. raises potential solutions while also erecting difficult barriers. If certain skills and competencies are vital for the mission and require positions but one cannot find a billpayer, can one outsource the function (i.e., transition from military to civilian or pursue contracts)?

Another question is to what extent should such decisions be made at the enterprise-level versus locally (e.g., within a branch of a service, geographic location, particular command)? Certainly, creation of new formal skill positions can favor enterprise solutions as the force has to systematize SHRM structures to accommodate (e.g., recruit, train, develop) such skills and integrate them properly to the rest of the enterprise. Major reallocations across branches (e.g., diverting and converting signal and intelligence assets to cyber and subsequently outsourcing signal and intelligence to make up the difference) or reallocating from the services to the joint or defense levels can also require strategic-level examination.

### *Budgetary impacts*

A final point on manning with respect to budgets and military end strength. It is not uncommon for some to conflate "force structure" with "military end strength" as the latter is the one standalone figure that both affects the size of the force and the size of the budget required. In the United States, military personnel is a separate appropriation for DoD, whereas civilian personnel are funded as a part of operations and sustainment appropriations. Increases and decreases of end strength therefore receives great



attention in the budgetary discourse, whereas the more important strategic question is how that end strength is allocated to fulfill the mission and strategy of the organization. However, it is important to recognize that end strength is but a very small part of what is referred here as "force structure."

#### ORGANIZING & EQUIPPING THE FORCE

Some readers may immediately react that the organization of this paper is backwards – once the roles & missions are determined, should leaders not decide upon the structure necessary to satisfy them before determining the manpower requirements? The answer from a United States perspective is, in practice anyway, "No." End strength is more aligned as an input into the organizing decisions rather than an output. In essence, Congress hands the end strength number to the force, and the force must work within it. The military may pre-plan what the right end strength should be based on structures needed, but ultimately must operate with the confines of the legislation which may differ.

It is beyond the scope of this paper to discuss the specific processes associated with force development, which includes the detailed work of translating requirements into organizations (i.e., personnel + equipment + command and control relationships) that provide the requisite capabilities. Instead, this paper will limit the discussion to organizing principles that services use to translate the national strategy, anticipated demands, assigned roles and missions, and manning constraints into a service-level strategy to develop the required capabilities into formal military units and command structures.<sup>29</sup>

For present purposes, this discussion includes the U.S. Title 10 function of *equipping the force*, which is directed to each services to incorporate the equipment necessary to provide the required capabilities. The equipping function involves everything from research and development to production, training, and

fielding. Below, I will only focus on the requirements side – the identification of what equipment units require which then feeds into other processes that resource it (e.g., modernization for novel or upgraded equipment).

#### *Quantities of platforms or units*

Analogous to end strength, quantities of platforms or particular types of unit can serve as organizing constructs. This is most apparent in the Navy and Air Force as discussions about the size of the service centers on numbers of ships or aircraft – for example, the Navy announcing a 355-ship fleet by 2050.<sup>30</sup> In some cases, the numbers of interest are total for the service while in other cases they may be platform-specific such as numbers of aircraft carriers, A-10 Warthogs or B-2 bombers. Quantities of units as an organizing construct are present in the Air Force (e.g., numbers of squadrons) and especially in the Army (e.g., numbers of divisions or brigade combat teams).

The alignment with strategy is therefore expressed as both available capabilities *and* capacity – often in conjunction with strategies build under assumptions of multiple operations happening simultaneously or in rapid succession. For example, a strategy based on a two-war scenario will translate into so many core platforms or units to prosecute both at once, while a strategy based on one war and one smaller operation may require fewer such units.

Service strategies may also have to account for the extent to which such assets are dedicated to particular missions implied by the strategy or required by the theater commanders. Conceptions such as regional alignment of forces, global presence, over-the-horizon capabilities will be discussed in the next section on force posturing and stationing, but each represents constraints on how many platforms and units can be dedicated to a mission versus being more generally available for employment.<sup>31</sup>

<sup>29</sup> For example, the Total Army Analysis system (see *HTAR*, Chapter 3) uses simulations and quantitative analysis to recommend quantities of various units required to satisfy the Army's requirements. Qualitative analysis follows that allow senior leaders to validate the results for approval.

<sup>30</sup> Megan Eckstein, "30-Year Plan: Navy Puts 355-Ship Cap on Fleet Size; Plans to Introduce Large Combatant, CHAMP Auxiliary

Hull," *USNI News*, March 21, 2019, <https://news.usni.org/2019/03/21/long-range-ship-plan-outlines-355-ship-cap-on-fleet-size-plans-to-introduce-large-combatant-champ-auxiliary-hull>

<sup>31</sup> For example, see John R. Bray, *Strategic Analysis of Regional Alignment of United States Army Forces*, Strategy Research Project (Carlisle, PA: U.S. Army War College, 2013).

## Doctrine

Doctrine plays a pivotal role in how the national strategy translates into a service strategy. Doctrine answers questions, usually in descriptive terms, about how the service will fight in satisfaction of the given roles and missions. Rarely are national strategies prescriptive, so the services may have some freedom in interpreting the ways and means necessary. Thus, the preparers of the national strategy may have in mind that a novel type of force is required, but a service may argue that existing doctrinal constructs provide an adequate answer. Or, vice versa if a service wants or needs to pursue cutting-edge ideas while national leaders may not accept the risk.

An example of a doctrinal question driving a service strategy is to what extent is a general capability favored? For example, the Army has undertaken several doctrinal shifts from being division-centric to brigade-centric and back. Equivalentents in the Navy include the make-up of a carrier strike group – such as how many destroyers or frigates<sup>32</sup> or whether or not to even include the carrier<sup>33</sup> -- or exploring alternatives to it entirely.<sup>34</sup> One can also consider on-going discussions of unmanned vehicles or drones and how emerging doctrine may contribute to the discourse on how many are needed, for what purpose, how to organize unmanned capabilities into units, how they will integrate into the joint or service fight, and how service members will interact with them.

Another doctrinal question surrounds the supporting structure of a combat unit. The choice can be (over)simplified as follows: Must a given unit train as it fights or must it be capable of plug-and-play? In the former case, the structure may involve having allocated support elements either assigned to, habitually associated with, or allocated to another unit, whether from brigade combat team up to joint task force headquarters. The advantages of stronger coupling between supporting and supported units presumably

translates into greater immediate readiness for operations, especially of short-notice or no-notice varieties. The latter is advantageous when the requirements are less certain or volatile, meaning that the supported unit requires resources (internal or external) to facilitate the cobbling together of disparate capabilities in a short time frame.

Other doctrinal questions arise concerning the respective roles of active and reserve components and the requirements for mobilizing. These will be addressed later in the Force Mix section.

## Workarounds for resource constraints

There are also instances where strategically, not every requirement can be fulfilled within existing manning levels, but the risk of not accounting for the requirements in the force structure is too great. Workarounds may be needed to bridge these gaps. Two examples follow, and while both may involve only small numbers of personnel, these can carry tremendous strategic implications on how a service or the joint force is organized.

One regards command and control and the designated of headquarters or other elements to provide it. Doctrine establishes what level of headquarters is preferred to command and control operations, however, this does not always translate into requirements for standing entities in peacetime. While in the U.S. Army, organizations such as division, corps, or theater headquarters might have persistent peacetime missions, others such as joint task force headquarters or joint land component command headquarters may not be required outside of on-going operations. Therefore, no such standing organization is needed. The workaround is to essentially double-task existing headquarters or other organizations to provide such a capability on order. In the 2000s, for example, an approach was to designate (by position or through a rotation) those individuals in a combatant

<sup>32</sup> U.S. Navy, "The Carrier Strike Group," archived at the Internet Archive "Wayback Machine," December 19, 2010, <https://web.archive.org/web/20101219124314/http://www.navy.mil/navydata/ships/carriers/powerhouse/cvbg.asp>

<sup>33</sup> David B. Larter, "Navy Deploys Carrier Strike Group to Pacific – Without the Carrier," *NavyTimes*, April 29, 2016,

<https://www.navytimes.com/news/your-navy/2016/04/19/navy-deploys-carrier-strike-group-to-pacific-without-the-carrier/>

<sup>34</sup> Mark Lewellyn, Chris Wright, Rodney Yeger, and Duy Nhan Bui, *Future Fleet Project: What Can We Afford?* (Johns Hopkins University Applied Physics Laboratory, 2016), <https://www.jhuapl.edu/Content/documents/FutureFleetProject.pdf>

command or service component command headquarters to serve on call as members of a joint operational headquarters.

Another example is *overstructuring*, which is the creation of units or commands with only minimal resources responsible for accepting and employing surge capabilities during crisis. One example is the U.S. Army's 18<sup>th</sup> Theater Army Engineer Brigade which was re-activated in June 2004 and became part of U.S. Army Europe and Seventh Army. In its earliest days, the 18<sup>th</sup> Engineer Brigade only consisted of a small cadre staff of 20 members and no assigned engineer units, but would see its headquarters grow and engineer units assigned as the 18<sup>th</sup> prepared for its 2005 deployment to Afghanistan.<sup>35</sup> While overstructuring can provide such flexibility, especially when other options may be infeasible, it requires the allocation of senior personnel -- those with great experience -- to be dedicated to such organizations *just in case*. Training and maintaining readiness of such organizations can be complicated.

#### 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* refers 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.<sup>36</sup> For present purposes, force posture encompasses the entirety of a nation's forces, although the management policies, processes, and systems may differ between domestic and foreign locations. For example, the U.S. has a separate DoD Instruction government foreign and overseas posture.<sup>37</sup>

Some terms of reference are in order as the terminology tends to evolve and may differ

among nations. *Stationing* is the act of establishing the footprint and agreements to allow forces to occupy that footprint. *Permanent stationing* is when such occupation is long-term. *Re-stationing* is the act of establishing a new permanent footprint for a unit and physically moving that unit to that location. Units can also be *temporarily stationed*, which is to say that they move to a new footprint for a limited period of time such as during a rotation to a forward operating base.

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 base* or "FOB") or only periodically occupied and retained primary for use during mobilizations, surge, exercises, or other military activities (e.g., a *cooperative security location* or "CSL").

The force posture of a nation with a global military presence is therefore complex. It is neither possible nor affordable to maintain permanent presence in all desired locations, and in some nations it can be difficult to secure the necessary agreements to establish even a minimal footprint, such as a CSL. But even sustaining a domestic force posture can be challenging given the political situation. Permanent stationing of forces gives local governments an economic boost, and any re-stationing actions can become contentious.

#### Planning Considerations

In the U.S., each combatant command is required to maintain a theater posture plan. There are a lot of considerations regarding where one stations a force, and some of these can come into conflict. One is *mission*, which would seem

<sup>35</sup> Rick Scavetta, "18th Engineer Brigade unfurls its colors in Germany," *Stars & Stripes*, January 22, 2003, <https://www.stripes.com/news/18th-engineer-brigade-unfurls-its-colors-in-germany-1.1261>

<sup>36</sup> 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).

<sup>37</sup> DoDI 3000.12 w/c1.

the most straightforward consideration but is, strangely, not always paramount. In Cold War Europe, the force posture was arrayed consistent with the war plans. From the 11<sup>th</sup> Cavalry Regiment on the front lines of the Fulda Gap to the divisions and corps behind, the forces of Seventh Army were stationed from where they could establish a line of battle from the moment of crisis. This required a widely distributed posture with large numbers of small kasernes. Similar considerations also weigh in how nations may elect to use the military to guard a border region against a neighboring adversary.

Mission considerations can also lead to centralization, meaning a few much-larger posts. For example, it may be best to station a full brigade combat team together so it can train as a unit, whereas distributing said team across multiple posts would be unacceptably inefficient.

Another consideration is *access* to needed capabilities. This could be access to training areas or other essential real property, transportation infrastructure such as roads and rail, and utilities or other external support available by the host. Some of these capabilities may be shared with the civilian community (these are known as *dual-use*) requiring agreements to assure military access during times of emergency.

Access can play important roles in determining the force posture overseas. For example, during the Cold War in Europe, the U.S. maintained multiple large maneuver areas to foster collective training beyond the capacity of most units' home kasernes. These three were Grafenwöhr, Wildflecken, and Baumholder Training Areas. During the series of drawdowns from the end of the Cold War until present, the preservation of adequate and accessible training areas was an important consideration for the resulting footprints. As part of the 1990s drawdown that saw the withdrawal of significant forces from eastern Hessen, the U.S. would transfer Wildflecken to the German Bundeswehr and use Baumholder Training Area as the primary for collective training in the western part of the U.S. footprint. The subsequent drawdown in the 2000s saw discussions about whether to

keep both the remaining training areas given the reduced footprint. However, the increased use of Grafenwöhr for training deploying units to operations in the Middle East demonstrated the need to retain Baumholder to ensure capacity to train for other missions.

Another consideration involves *agreements* that allow the ability to mobilize capabilities where and when needed. What footprint does the force need just in case? Conceptions such as *enduring location* and *contingency location* describe the extent to which a base or post is active at any given time. Enduring locations are those locations designated by DoD for strategic access for the foreseeable future, while contingency locations might have few or no military tenants and the facility allows little to no access outside of contingencies.<sup>38</sup> These same ideas can also apply to the placement of pre-positioned stocks and equipment, a hallmark of Cold War planning.

Returning to the European example, a significant requirement was for access to transportation infrastructure to support the influx of forces to respond to a Warsaw Pact invasion into western Europe. In addition to the mobilization and employment structures needed to push five divisions out from the continental U.S. were the requirements for port access in places such as Bremerhaven, Germany, Antwerp, Belgium, and Rotterdam, The Netherlands and subsequent access to road and rail networks to move the forces to their forward staging areas. The REFORGER ("Return of Forces to Germany") Exercise demonstrated the ability of the U.S. to push forces out and NATO partners to receive them in theater. Meanwhile, force structure in Europe included U.S. units stationed at or near such facilities to manage reception and onward movement at each port.

Agreements with host countries are also important for stationing purposes. *Status of forces agreements* (SOFA), for example, represent bilateral or multi-lateral agreements allowing the forces of one nation to be stationed in another. Such agreements can be long-term ("permanent") or short-term ("temporary").

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<sup>38</sup> Chairman of the Joint Chiefs of Staff, *Contingency Basing*, Joint Publication 4-04 (Washington, DC: The Joint Staff, January 2019).

Prominent examples include U.S. SOFA agreements with Germany and South Korea that allowed the U.S. to establish military presence with families in both nations. SOFAs may constrain or restrict stationing or re-stationing actions and may govern the return of U.S.-employed facilities back to the host nation.

### *Challenges*

Force posture presents a significant overall challenge to force structure as the enterprise must ensure that each unit is stationed where it can perform its mission. An optimal force posture is one where each unit is location where it can best perform its mission, have immediate and unfettered access to critical capabilities, and have all agreements in place to allow the force to deploy where and when needed. However, the optimal solution is difficult to achieve for several reasons, some of which will be introduced in the next section on real property.

One challenge is cost. Stationing is very expensive, and re-stationing even more so. In addition to the costs of establishing and maintaining a post or base (e.g. utilities, security systems, facility upkeep and modernization), there are the costs of housing and sustaining the quality of life for service members, civilians, and family members (and to a lesser extent, military retirees and contractors). The last category is particularly challenging when the host city or country does not have the capacity to provide the full range of healthcare or other amenities, causing the military to provide such services on-post – larger clinics than might otherwise be necessary, for example. On the other hand, other locations can have unacceptably high costs of living that makes stationing units there too expensive.

Leaders may presume that stationing costs can be reduced by employing rotational unit strategies. For example, one could have a set of units in a continental U.S. location and merely deploy the soldiers forward to an overseas base rather than station a unit permanently at the base. While the costs of operating forward may be less, there are hidden and opportunity costs associated with such a move. First, the rotation itself will have an impact on unit readiness as each must devote additional energy and

resources toward deploying and redeploying & integration. Retention can also become an issue should such deployments occur too often or become additive to other rotations.

Another challenge is that the enterprise often lacks a choice of where to station units. Overall since the Cold War, the U.S. military footprint has shrunk considerably and it is very difficult to imagine opening a new base anywhere – currently the trend is toward repurposing old facilities or consolidated units together (including construction of new facilities) on the same post for efficiency. Overseas, the problem is magnified by the need for additional agreements to allow stationing or re-stationing of units. The closure of facilities in Germany in the 2000s and 2010s was opposed by a number of local mayors who stood to lose all the business that U.S. service members and families bring.

Moreover, strategically the footprint could fall out of alignment with the needs of the force. This was apparent during post-Cold War operations as the predominance of U.S. forces were stationed north of the Alps while the Balkans and Middle Eastern theaters were located to their south. Restrictions and prohibitions on the use of Swiss and Austrian airspace complicated matters for forces employing from Europe, but mass re-stationing of forces to more suitable locations was not feasible. As the global environment has changed, however, the need for a footprint (albeit smaller and/or realigned) has re-emerged.

### *Implications*

Perhaps more than any other category, force posture is a source of hidden and opportunity costs. There is tremendous volatility and uncertainty associated with stationing decisions, particularly those involving another nation, such as whether or not they will be optimally positioned for employment on the next actual crisis. Quests for efficiency can also lead to consolidating the footprint in fewer, larger bases which risks future inability to conduct larger mobilizations exceeding the capacity of the fewer on-hand bases.

It is also too easy to devolve discussions about force posture to the transactional level, e.g., "Unit X moves from Fort P to Fort Q." It can seem



like an easy thing to do, especially if the goal is to withdraw from a particular base or location. But the broader strategic questions about the resulting posture can easily be overlooked or brushed aside. The strategic questions of stationing should remain out front. For example, John Deni (2017) compared the pros and cons of forward stationing versus rotational presence and argued that the former is preferable due to enhanced detailed knowledge of the theater, lower overall costs, and enhanced abilities to “fight tonight.”<sup>39</sup> John Glaser takes a contrary view, arguing that forward stationing no longer has the deterrence effect it once did and exposes forward forces to being overrun before the U.S. could respond.<sup>40</sup> Regardless of which way one falls philosophically, the posture plan must ensure that forces stationed forward are ready to respond and can contain the situation until rear stationed forces can move forward.<sup>41</sup>

The final implication is closely tied to the next section on Real Property – *utilization & determination of excess*. The question is this – what constitutes ‘excess’ property? From a stationing standpoint, the answer includes unutilized (no tenant), underutilized (too much for the tenant), or misutilized (wrong type of tenant) facilities and real property. Clearly, the alignment of stationed tenant units and available real property should be optimal, and many types of units require only minimal tailoring of facilities to satisfy the mission and therefore could theoretically be stationed anywhere. However, as the next section will show, determining what it truly excess or unneeded from a real property standpoint is very challenging.

## REAL PROPERTY

Real property – including real estate, the facilities available on them, and the services they provide – presents a wide range of complex management requirements that often rise to the enterprise level. While global force posture decisions focus on the stationing of tenant units

and capabilities (e.g., ships, aircraft, brigade combat teams), real property management efforts ensure their sustainment through the provision of adequate land, airspace, waterways, and facilities to allow the services to provide trained and ready forces to combatant commands.

DoD requires dedicated resources partly because of the uniqueness of military equipment. Tanks, submarines, and military aviation require specialized facilities for stationing, security, transportation, and employment of those assets. Significant land resources are required for the conduct of military training, whether large spaces for infantry or armored maneuver or simulated buildings and towns for urban warfare. Facilities also require adequate infrastructure tailored to mission requirements such as adequate power and utilities, information technologies, and security systems. This section introduces three focus areas on real property, facilities, and infrastructure.

## Construction

In DoD, military construction (MILCON) is an important appropriation that governs construction projects, with larger projects requiring Congressional approval. Other appropriations of note cover military expenditures on family housing construction and environmental restoration.<sup>42</sup>

MILCON can be a critical component of weapon systems development and fielding – after all the ‘F’ in DOTMLPF stands for *facilities*. Having the right facilities available to house the capability and permit maintenance and training is vital. Unfortunately, the lead time for constructing or renovating facilities could be extensive, and the complexities involved may mean the facility is not ready.<sup>43</sup>

Re-stationing actions often incur the need to construct, renovate, refurbish, or expand facilities to accommodate incoming units, while those of outgoing units must be sustained or brought to a

<sup>39</sup> John Deni, *Rotational Deployments vs. Forward Stationing: How Can the Army Achieve Assurance and Deterrence Efficiently and Effectively* (US Army War College Carlisle United States, 2017), 39-43.

<sup>40</sup> John Glaser, “Withdrawing from Overseas Bases: Why a Forward-Deployed Military Posture Is Unnecessary, Outdated, and Dangerous,” *Cato Institute Policy Analysis* 816 (2017).

<sup>41</sup> Stacie L. Pettyjohn, *U.S. Global Defense Posture, 1783-2011* (Santa Monica, CA: RAND, 2012), 97-110.

<sup>42</sup> For more on MILCON, see HTAR 8-24 through 8-25.

<sup>43</sup> For a historical example, see James B. Lincoln, *Fielding Army Weapon Systems: Experiences and Lessons Learned*, Student Research Report (Washington, DC: Industrial College of the Armed Forces, June 1980), <https://apps.dtic.mil/dtic/tr/fulltext/u2/a087013.pdf> (retrieved January 22, 2019) that covers lessons learned of several systems fielded in 1979.

condition for transferring to the host nation or community. Sometimes the pressures to move units precede a base's abilities to absorb incoming tenant units, necessitating temporary facilities (which may involve contracts) or other accommodations to allow the unit to perform its mission at an adequate level until the implementation of more permanent solutions.

### *Dual-use facilities and infrastructure*

Some real property in DoD is *dual-use*, meaning that it is available to both DoD and non-DoD entities such as the private sector. Such facilities or capabilities require DoD to enter into partnerships with civilian authorities and providers to ensure appropriate access during both routine operations and during crisis or war. Such facilities include transportation networks such as seaports, airports and the utilization of airspace, rail, road networks, and associated staging areas and berths. For example, under the Strategic Seaport Program,<sup>44</sup> DoD has 17 commercial seaports designated as transportation hubs that the military may require for transporting forces or logistics.<sup>45</sup> SSP governs which seaports have the capability and capacity to serve military requirements, are properly incorporated into Army planning, and are sustained and upgraded as needed to serve military requirements.

Another example, one that is recent and ongoing as of this writing, is DoD's exploration of existing civilian-developed 5G networks to modernize the military's information infrastructure and support readiness. Among the intentions of the effort are to enhance capabilities for augmented reality and virtual training and command and control systems.<sup>46</sup>

### *Sustainment & challenges*

Real estate and facilities degrade over time, possibly to the point where land conservation and preservation and building renovations become necessary. In DoD, upgrades and upkeep are part of a service's or agency's operations and maintenance budget, and each service governs its real property differently. For example, the U.S. Army established an Installation Management Command, or IMCOM, to implement base support services. Sustainment can be expensive, and due to aging and the need for upgrades, infrastructure has become a significant factor for cost growth among the services.<sup>47</sup>

However, cost is but one concern in matters of real property. A few are listed here. One is *encroachment* or the "the cumulative result of any and all outside influences that inhibit normal military training, testing, and operations."<sup>48</sup> Urban growth, noise, air and maritime sustainability, and identification and protection of endangered species and critical habitats are among the issues that can bring about restrictions on on-base activities. Another is a more general question of budgets and whether at any given time DoD can afford to construct needed facilities, close unneeded ones, or renovate facilities multiple times over. A third, made clearly manifest during the COVID-19 pandemic, are occupational health considerations. Can a unit continue its mission within its existing real property while maintaining necessary precautions against the spread of disease? In the short term, military organizations had to adapt its existing facilities to allow continued mission accomplishment under new social distancing requirements. Longer-term planning will address what upgrades or new facilities will be required.

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<sup>44</sup> Rolando C. Baez, "The Strategic Seaport Program: Ensuring Transportation Readiness," *Army.mil*, January 10, 2017, [https://www.army.mil/article/180466/the\\_strategic\\_seaport\\_program\\_ensuring\\_transportation\\_readiness](https://www.army.mil/article/180466/the_strategic_seaport_program_ensuring_transportation_readiness)

<sup>45</sup> Zina D. Merritt, memorandum to Congressional Committees, subject: Defense Logistics: The Department of Defense's Report on Strategic Seaports Addressed All Congressionally Directed Elements, U.S. Government Accountability Office, May 13, 2013, <https://www.gao.gov/assets/660/654578.pdf>. DoD itself also owns five "strategic ports" of its own for a total of 22.

<sup>46</sup> C. Todd Lopez, "DOD Kicks Off World's Largest Dual-Use 5G Testing Effort," *Defense.mil*, October 9, 2020,

<https://www.defense.gov/Explore/News/Article/Article/2378047/dod-kicks-off-worlds-largest-dual-use-5g-testing-effort/>

<sup>47</sup> Congressional Budget Office, "Trends in Spending by the Department of Defense for Operation and Maintenance," January 2017, <https://www.cbo.gov/sites/default/files/115th-congress-2017-2018/reports/52156-omchartbook.pdf>

<sup>48</sup> John Elwood, "Too Close for Comfort: Encroachment on Military Lands," in Nancy Benton, J. Douglas Ripley, and Fred Powledge, *Conserving Biodiversity on Military Lands: A Guide for Natural Resources Managers* (NatureServe, 2008), 75, <http://www.dodbiodiversity.org/ch4/Chapter.4.Encroachment.pp74-89.pdf> (retrieved January 22, 2019).

Another are *environmental considerations* that can preclude the use of real property or make it difficult to transfer it to the local population when a base or post closes. The need to protect endangered species can render federal property unusable. Hazardous waste and contamination of land from firing ranges and other military activity can also bring about restrictions of land use and expensive clean-up. Noise pollution from military training (including sonar use in the sea that can potentially bring harm to whales) can also bring about limits on military activities.

### CONCLUSION

The question of 'Who does What and When?' is a complex one to answer, and the typical vagueness of national strategies can leave a lot of room for service discretion. However, there are some figures that draw immediate national attention, such as end strengths and numbers of key platforms. The risks of resources driving strategy are real, but so too is the oversimplification of strategy down to the magic number. A 400-, 375-, or other-ship Navy is not a strategy, but the risk is always there that it becomes the strategy. The 2020 pandemic and associated future squeeze on federal budgets makes such number-wrangling attractive. Senior leaders have to think broader because the U.S. maintains a global footprint and it is far more important to consider where the force structure needs to be so it can best meet the demands of combatant commanders.

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