

# Weaponize Skill for Sea Power

Technical Duty Specialists and Specialty Area Officers  
in our U.S. Navy and Marine Corps team

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The United States Navy and Marine Corps (NMC) should augment their rank structure and manpower models to better leverage specialized technical roles that match the demands of current and future Great Power competition. The United States cannot compete in the digital age without sweeping change to our manpower management model—change akin to the transformation of great navies from the age of sail to mechanization. Recognizing and shrewdly responding to shifting power structures is the price of lasting global ascendancy, and the NMC needs to better leverage its human resources to meet the challenges that face us now and will only grow more acute as technology advances.

The circumstances require an updated approach to how the NMC recruits, develops, and retains talent to be more inclusive and intentional in order to more fully leverage expertise and win in the digital age. A change in focus is needed to engage individuals according to their skills and training to maximize their usefulness as well as encourage and enable career-spanning specialization vice compelling too many to follow a generalist's command/executive track. In fact, the U.S. military is already losing a battle many do not seem to realize it is fighting—and that failure to recognize specialized skills and expertise are the most overlooked and under-developed weapons in the quest to maintain military superiority. This suppression of specialization is not only a leadership failure, but it could ultimately contribute to strategic failure at the highest levels of global conflict

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***We have a serious problem looking to the future ... The way we are functioning today is not going to be satisfactory for the challenges we face in the future, and knowing that, we must change."***

***—Gen Peter Pace***

and a continued erosion of American superiority on the world stage.

Whilst science fiction author and Naval Academy graduate Robert Heinlein said, "specialization is for insects,"<sup>1</sup> he was not accountable for leading naval Services in the 21st century and facing global competitors in persistent, cold conflict. Nowhere in boardrooms, especially Silicon Valley, could Heinlein's words be championed today. The NMC should not be fooled to think a two- to-three-year detour along the traditional generalist's track facilitates the growth or plugs the deep technical need of the NMC's future. While this is not solely a sea Service problem, the naval Services

can chart a course other Services could follow.

Enduring competitive advantage is based on innovation, adaptability, and human capital development. The NMC can adapt and reject rigid single lane career paths to favor a more competitive meritocracy where specialists skilled in technical and functional duties can achieve excellence while maximizing their utility. This requires re-engineering how the NMC compensates people and breaking the lock step between military rank and pay based on years of service. Valuing command/executive leadership need not conflict with honoring the prudent, necessary

specialization demanded by the needs of the digital age. The NMC does not need more supervisors; rather it requires more super geniuses. It is okay for the super genius to eschew running an organization. We recommend developing new tracks of a technical duty specialists (TDSs) and specialty area officers (SAOs) to complement the traditional command/executive track officers.

**Case for Change**

Increasing complexity in some areas of warfare require more time and budget to develop individuals who can achieve levels of proficiency for meaningful return on those investments. In some fields, technical demands require graduate education. Often, a master’s degree is “table stakes” to “get into the game.” Winning the game requires more than a generalist can invest while remaining competitive for advancement because of our single-track model. To develop and retain Sailors and Marines who are able to grow, retain, and wield Service proficiencies, the NMC will need to incorporate fields of expertise such as those in Figures 1 and 2.

The NMC cannot assume it will be able to attract highly technical and specialized professionals if it only changes around the edges. The effects of the Blended Retirement System’s wave are inbound. The bonds that incentivized twenty years of service will weaken, particularly for those with the most commercially valued skills. Some of our brightest technical Sailors and Marines will enjoy the benefits of military service and will want more responsibility and money within their field, but they will

- Acquisition
- Attaché
- Operational Planners
- Operational Analysis
- Wargaming
- HUMINT or other INT experts
- Operations Research
- Logistics and Supply Chain Analytics
- Finance and Budgeting Management
- Program Assessment and Evaluation
- Requirements Management
- Regional/Target Specialization
- Mine and Antisubmarine Warfare
- Recruiting leadership
- Targeting
- Shore Installation Management
- Space cadre
- Naval Strategists/POLMIL
- Education and Training Management
- Aviation Professional Flight Instructors

*Figure 2. Potential specialization areas for SAOs.*

***“The fault, dear Brutus, is not in our stars, but in ourselves.”***

***—William Shakespeare***

not be attracted to the broad picture generalist assignments required to obtain rank or command.

If the proverbial unicorn, that being a physically and mentally fit, motivated candidate with a doctorate in artificial intelligence wanted to serve and leverage his technical skills, no such path to service currently exists. We need to build one. Today, the institution would force that individual down the same well-worn career paths as less-technical enlisted and officers. We need new direction. The NMC must make it easier for technical experts to stay in their areas of expertise and advance their ex-

pertise and competence. The generalist model that served us so well for the last 240-plus years will not serve us into the future; it is not even serving us now. The NMC must unshackle, engage, and cultivate human capital like never before to achieve world leading results. The current system is wasteful in ways we are just beginning to recognize and leads to a loss of otherwise excellent service members who are costly and difficult to replace. We must either offer our talented people a career path they like or many of the best will vote with their feet, and we will be compelled to make do with what we have instead of cultivating and retaining the best we could produce.

If we seek to optimize talent for the NMC, not all of our best and brightest necessarily want to—nor are they necessarily suited—to command; we must construct more than one path to success. We recommend creating two new categories, TDSs and SAOs, to complement current career paths.

**TDS**

A TDS would be a separate new rank system, from TDS-1 to TDS-6, with visibly different insignia, that—from

- Cyber Security and Cyber Warfare
- Malware Reverse Engineering
- Cyber Exploit Developer
- Big Data Management and Data Engineering
- Machine Learning and Artificial Intelligence
- High Performance Computing
- Data Science, Analytics, and Automation
- Autonomous Systems and Robotics
- Modeling and Simulation Specialists
- Blockchain
- Quantum Computing
- Nano and Cybernetics
- Human Computer Integration

*Figure 1. Potential specialization areas for TDS.*

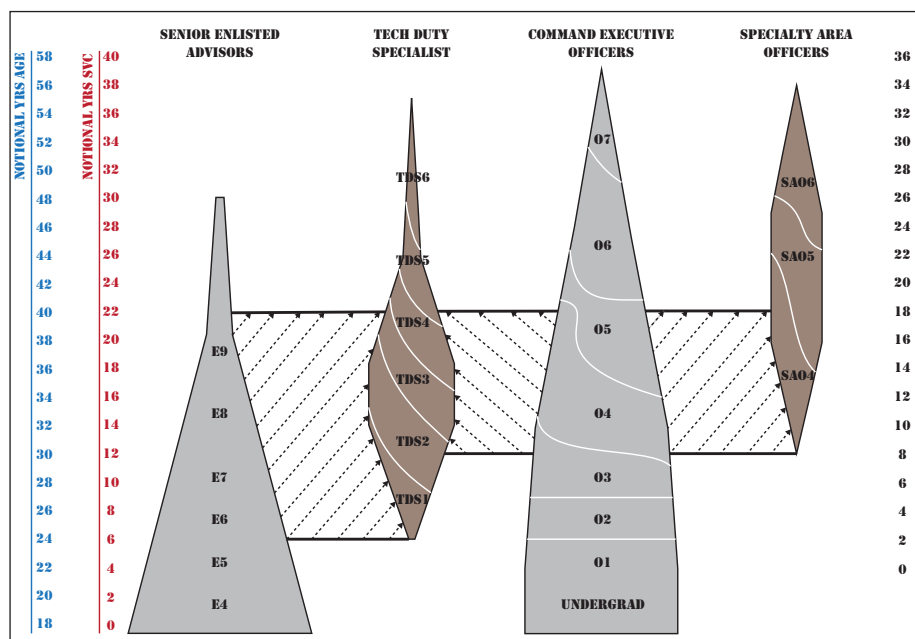


Figure 3. Potential TDS and SAO career mapping.

a military courtesy point of view—are afforded courtesies similar to, but immediately junior to, the corresponding second lieutenant to colonel officer pay grades. Multiple entry points will permit the ability to compete for and hold a seat at the table amongst a breadth of technical talent, joining from the enlisted ranks, (including warrant officers and limited duty officers, previously commissioned officers, and directly from the civilian world. Selection boards would determine who is brought in, promoted, and retained. If it created value based on the specialty, enlisted personnel could apply after six years of relevant experience to the TDS-1 level or join later at a higher TDS level based on their qualifications’ competitiveness. Base pay would remain modest, but because of the wide variations in specialties’ compensation, different classes of incentive pays would be added to make for a more competitive compensation relative to civilian market demand for that specialty. TDS pay could vary significantly and some TDS would earn more than commissioned officers of higher ranks.<sup>2</sup> The result is a TDSs somewhat similar to the warrant officers and limited duty officers system, but with no enlisted pre-requisite, greater cognizance of individual technical skill contribution, and compensation closer to market rates.<sup>3</sup>

Enlisted, commissioned officers, and even accomplished civilians with the right technical credentials, proficiency, and a desire to serve could laterally move into the TDS at mid or higher levels commensurate with their application package’s competitiveness. Once aboard, TDS would be assessed for *obtaining further mastery in their craft and spreading that to others* vice progressing to management or executive leadership. There would be comparatively few at the higher levels and “up or out” pressures would be driven by quota control by specialty demand. For promotion and retention boards, TDS would submit documentation supporting their package to include applied research, patents, publications, awards, and other relevant technological accomplishments. Training others<sup>4</sup> and advancing their field’s knowledge would be measured as some of the key criteria for progression to TDS-4 through TDS-6, but there would not be the same pressure of today’s “up or out” career conveyor belt. Instead, one could choose to not apply for promotion and remain at, for example, the TDS-3 level if they prefer that level of assignments, as long as they were meeting key performance standards.<sup>5</sup> Once established, an ultimate volume of TDS inventory would permit longer rotation

lengths and, where appropriate, higher levels of education and other diversifying tours<sup>6</sup>—perhaps with other services or the private sector—that facilitate technical and training advancement.

### SAOs

Commissioned officers who develop skill sets of great value to the military must have better means to continue to serve, with increased responsibility and compensation, for longer returns on investment, but without having to compete against command path officers for the same few major and colonel command-oriented slots. The Army has the concept of Functional Areas, where once a commissioned officer changes to a Functional Area,<sup>7</sup> they change their primary manpower code,<sup>8</sup> detailer, career path, and what the Navy would call their promotion board “competitive category” cohort.<sup>9</sup> We recommend the term SAO because, beyond a functional role, many specialties from several designators are valuable for parts of the NMC but not sizeable enough for a separate designator.<sup>10</sup> A key change would have separate promotion selection boards for SAOs following the normal promotion boards for those wishing consideration as a follow-on to the traditional designator and community focused promotion boards. The promotion slots set aside for the Navy’s specialty career path<sup>11</sup> could be expanded to include areas in the Secretary of the Navy’s competency/skills list,<sup>12</sup> in niches where two or more tours to cultivate the growing expertise followed by well-considered detailing would benefit the Service.

We suggest an expansion of the concept and setting aside some promotion quotas for specialties beneficial to the NMC vice only the scraps remaining from the unrestricted line promotion process. The resulting SAO sub-groups could be smaller than a viable separate designator or community but would bolster areas where both commissioned officer expertise and leadership and staff experience are beneficial. Varied compensation needs required for some TDS will not be required to retain the caliber of SAO required by the NMC.<sup>13</sup> The traditional officer rank structure and general promotion timelines would re-

main intact as an alternative path to the command at sea equivalent and afterward. These officers would serve in areas where mid-career entry is preferred and most likely convert from the traditional command path at the eight to eighteenth year of commissioned service. Minimum service obligations would make sense for the NMC to ensure return on investment after permitting

the switch. For promotion, the NMC SAOs would move to a distinct promotion competitive category and compete across others within their new specialty area, at their approximate seniority vice their earlier designator/community.<sup>14</sup> Precepts focusing on their performance and potential to contribute within their new specialty area would drive board assessments. Because skills within spe-

cialty would matter more than years of service, we recommend competing among larger population sets of several year groups to identify the *most accomplished and useful within the specialty* for promotion quotas set aside for their specialty area. In certain cases, SAOs could potentially continue to serve through flag level in billets benefiting from their specialties. Recent examples of this are in acquisition, financial management, shore installation management, and overseas expertise—areas pointed out in recent Navy flag selection board convening orders as so critical that the experience sets were directed among flag selections.<sup>15</sup> Naval aviation’s new Professional Flight Instructor program<sup>16</sup> or advance skilled operational planners could become a SAO types. Anywhere that the NMC could benefit from a commissioned officer’s deep proficiency not obtainable via the mainline command-at-sea track—but not requiring a separate special duty officer designator/community—could be considered for SAO status. The Secretary of the Navy’s skills list already enumerates skill groups important to the Navy. They are generally too small to be separate designators, yet too critical not to cause pain if those skills are not retained and cultivated. AO would preserve those that may not be best suited for higher command, but whose specialty skills contribute to making the Navy and joint force more lethal, capable, and experienced.

**Conclusion**

By creating TDS and SAO career paths, we can better attract, retain, and leverage talent while retaining a robust command/executive track. The technical demands brought by cyber warfare, artificial intelligence, robotics, and other fields on the horizon require technical skills that demand very advanced education and attract private sector hiring pressures to an unprecedented extent. Planning, acquisition, and deep adversary knowledge are too valuable to not prioritize. Creating strong contributors will require greater commitment by the Service and the individual than is permitted through current generalist career paths. We have provided models for how the NMC can leverage these

	TDS	SAO
<b>Rank</b>	<ul style="list-style-type: none"> <li>• Different rank insignia.</li> <li>• Ineligible for command.</li> <li>• Can apply to advance based on new qualifications.</li> </ul>	<ul style="list-style-type: none"> <li>• Matches officer rank structure and insignia.</li> <li>• Could have previously had command.</li> </ul>
<b>Pay</b>	<ul style="list-style-type: none"> <li>• Varies based on civilian market pressures. Incentive pays form large portion of compensation.</li> <li>• Can apply to advance based on new qualifications.</li> </ul>	<ul style="list-style-type: none"> <li>• Matches officer pay structure.</li> <li>• Retention bonuses could be considered if required to maintain desired population.</li> </ul>
<b>Education</b>	<ul style="list-style-type: none"> <li>• As needed to be competitive in specialty.</li> <li>• Skills based on certifications and experience in technical field—MS and PhD preferred but not required.</li> </ul>	<ul style="list-style-type: none"> <li>• Education and experience in specialty based.</li> <li>• MS and/or PhD not required of all Specialty Areas.</li> </ul>
<b>Leadership</b>	<ul style="list-style-type: none"> <li>• Lead within specialty, expand the craft, and spread knowledge to others.</li> </ul>	<ul style="list-style-type: none"> <li>• Matches pay bands of commissioned officers, but will lead within specialty vice organization.</li> </ul>
<b>Advancement</b>	<ul style="list-style-type: none"> <li>• Like vs like, but will look at larger zones so that leap-frogging of peers is common.</li> <li>• Require opt in for promotion boards but selective retention boards will keep group vibrant.</li> </ul>	<ul style="list-style-type: none"> <li>• Like vs like, but will look at larger zones so that leap-frogging of peers is common.</li> <li>• Driven by who is most useful within the specialty.</li> <li>• Require opt in for promotion boards but selective retention boards will keep group vibrant.</li> </ul>
<b>Sourcing</b>	<ul style="list-style-type: none"> <li>• Internal, enlisted and officers.</li> <li>• External, civilians.</li> <li>• Applicants with advanced skills may lateral entry at higher levels.</li> </ul>	<ul style="list-style-type: none"> <li>• Internal, experienced officers.</li> <li>• Could be open to former Warrants and LDOs.</li> </ul>

Figure 4. TDS and SAO table of expertise and other rank and rating characteristics.

forces to cultivate a workforce with the skills and technologies necessary to secure our future sea power. Currently, we shed too much talent by not offering a career path outside of command/executive path that is competitive with today's private market. The NMC can enhance and even attract specialists by allowing TDSs and SAOs to pursue their professional interests and aptitudes where those interests align with the Services' needs. If we unshackle, engage, and cultivate our human capital more effectively, we can improve our return on investment which will directly impact our ability to deliver sea power and win our Nation's conflicts.

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### Notes

1. Robert Heinlein, *Time Enough for Love*, (New York, NY: G.P. Putnam's Sons, 1973).

2. Similarly, some Medical Corps physicians are more highly compensated because of the nature of their specialties.

3. A TDS3 responsible for Food Services (if the program were to expand beyond initial high-tech fields) and a TDS3 Cyber Interactive Operator would face different market compensation, so paying them based on years of military service makes no sense.

4. The model could permit the inclusion of tactical experts also. For example, a particularly skilled SEAL or aviator who wanted to stay operational in a training role, adding value at a higher level, could conceivably continue doing what they are best at—if their communities would like to use one of their TDS slots for a tactical subject matter expert. A highly seasoned coach could gain more expertise as TDS vice command track. Alternatively, a policy decision could be made to permit tactical expert specialists to become specialty area officers.

5. Leap frogging past peers would be permitted. A junior TDS3 keen to promote could seek promotion to TDS4 before their peers based on newly acquired accomplishments. This is modeled in parts of academia, civil service, professional services firms, and even some other militaries.

6. A key point to TDS is one need not "move into management," pursue joint qualification, and neglect their technical gifts simply to stay in the service or earn a comfortable living for their family. Education level and civilian industry experience needs would vary by specialty designators and competitive categories—very critical to some or less important to others. Some specialty designators may evolve to predominately prior enlisted, as are today's limited duty officers and chief warrant officers, but others may have more former commissioned officers or straight from the civilian world. But, to remain a TDS, one would need to stay fresh and learning within their specialty. Commanding officer evaluations, but also 360-degree feedback assessments and selective retention boards, would be looking for those not creating new value and when required, tapping them to leave the Service with appropriate due process and notice. The Navy has used retention boards to review records of Sailors with certain years in pay grade, and select a percentage for retention in their specialty, some for converting their specialty, and some for separation to rebalance the force in terms of seniority, experience, and skills. For an example see <https://www.navy.mil>.

7. Army Functional Areas can be thought of in Navy terms as smaller designators similar to the way specialty duty officers/restricted line has evolved, but specifically where mid-career entry is preferred.

8. Designator in Navy terms, or MOS to the Marine Corps.

9. Under the Army program, these Functional Area Officers retain the uniform insignia of their basic, former branch but are assigned and tracked by separate functional area managers or detailers. Previously, the Army allowed of-

icers to transition back to their former branch at predetermined career gates but no longer permits this practice. We recommend it be a one-way door also.

10. Acquisitions, planners, program managers, strategists, requirements and regional specialists are a start of a potential list. The Army has over a dozen Functional Areas including their space cadre.

11. The Navy has begun a step in this direction called Specialty Career Path. Information available at <https://www.public.navy.mil>.

12. The Secretary of the Navy periodically lists approved competency/skills across Navy communities and paygrades. Information available at <https://www.public.navy.mil>.

13. SAOs deeply valued for their expertise could be selectively recommended for waivers to defer retirement.

14. Rather than waiting to "come in zone" for promotion, it would be possible for those with a minimum time in their SAO specialty and time in grade to voluntarily apply for promotion, if combined with a "[two or] three strikes and you're out" system for those who consider themselves competitive in their new SAO designator, and eager to seek promotion before they would normally be considered "in zone" among their previous designator.

15. Information available at <https://www.public.navy.mil>.

16. Ibid.

*>Authors' Note: The views expressed here are the author's alone and do not reflect those of the Navy or the Marine Corps.*

